THE ASTROPHYSICAL JOURNAL

INDEX TO VOLUME 322, PARTS 1 AND 2

1987 NOVEMBER 1 AND NOVEMBER 15

ABBOTT, DAVID C. The Discovery of Nonthermal Radio Emission from Magnetic Bp–Ap Stars. *Stephen A. Drake, David C. Abbott, T. S. Bastian, J. H. Bieging, E. Churchwell, G. Dulk, and Jeffrey L. Linsky.* **322**, 902, 149-F10 (1987)

ABDELATIF, TOUFIK E. Heating of Coronal Loops by Phase-mixed Shear Alfvén Waves. *Toufik E. Abdelatif.* **322**, 494, 143-D1 (1987)

ABT, HELMUT A. Announcement: Availability of a Current Index to *The Astrophysical Journal* and *The Astronomical Journal*. *Helmut A. Abt.* **322**, 1073, 151-C11 (1987)

ANTONUCCI, E. Simulations of the Ca XIX Spectral Emission from a Flaring Solar Crornal Loop. I. Thermal Case. *E. Antonucci, M. A. Dodero, G. Peres, S. Serio, and R. Rosner.* **322**, 522, 143-F1 (1987)

APPARAO, KRISHNA M. V. Effect of Balmer Continuum Absorption on Line Emission from Be Stars. *Krishna M. V. Apparao and S. P. Tarafdar.* **322**, 976, 150-E7 (1987)

APPLEGATE, JAMES H. Magnetic Activity, Tides, and Orbital Period Changes in Close Binaries. *James H. Applegate and Joseph Patterson.* **322**, L99, 152-D4 (1987)

ARNAL, M. E. Observation of the OH 1667 MHz Line toward Comet Halley from the Southern Hemisphere. *E. Bajaja, R. Morras, W. G. L. Pöppel, J. E. Cersosimo, M. C. Martin, J. Mazaro, J. C. Olalde, A. Silva, M. E. Arnal, F. E. Colomb, I. F. Mirabel, and V. Boriakoff.* **322**, 549, 144-A1 (1987)

ATTEIA, J.-L. *SMM* Hard X-Ray Observations of the Soft Gamma-Ray Repeater 1806 − 20. *C. Kouveliotou, J. P. Norris, T. L. Cline, B. R. Dennis, U. D. Desai, L. E. Orwig, E. E. Fenimore, R. W. Klebesadel, J. G. Laros, J.-L. Atteia, M. Boer, K. Hurley, M. Neil, G. Vedrenne, A. V. Kuznetsov, R. A. Sunyaev, and O. V. Terekhof.* **322**, L21, 145-B8 (1987)

AUER, L. H. Atmospheric Eclipses in the SMC Wolf-Rayet Eclipsing Binary HD 5980: The Heavy versus the Light Metal Abundance. *G. Koenigsberger, A. F. J. Moffat, and L. H. Auer.* **322**, L41, 145-C12 (1987)

BACKER, D. C. VLBI Structure of 3C 84 at 89 GHz. *D. C. Backer, M. C. H. Wright, R. L. Plambeck, J. E. Carlstrom, C. R. Masson, A. T. Moffet, A. C. S. Readhead, D. Woody, A. E. E. Rogers, J. M. Moran, C. R. Predmore, and R. L. Dickman.* **322**, 74, 138-F11 (1987)

BAJAJA, E. Observation of the OH 1667 MHz Line toward Comet Halley from the Southern Hemisphere. *E. Bajaja, R. Morras, W. G. L. Pöppel, J. E. Cersosimo, M. C. Martin, J. Mazaro, J. C. Olalde, A. Silva, M. E. Arnal, F. E. Colomb, I. F. Mirabel, and V. Boriakoff.* **322**, 549, 144-A1 (1987)

BALFOUR, WALTER J. The Near-Infrared Spectrum of the FeH Molecule (Abstract of Paper in 1987 December Suppl.). *John G. Phillips, Sumner P. Davis, Bo Lindgren, and Walter J. Balfour.* **322**, 1077, 151-G3 (1987)

BALLY, JOHN. Properties of Evolved Mass-losing Stars in the Milky Way and Variations in the Interstellar Dust Composition. *Harley A. Thronson, Jr., William B. Latter, John H. Black, John Bally, and Perry Hacking.* **322**, 770, 148-C5 (1987)

BARKER, TIMOTHY. The Ionization Structure of Planetary Nebulae. VII. New Observations of the Ring Nebula. *Timothy Barker.* **322**, 922, 150-A6 (1987)

BARON, E. The Appearance of Primeval Galaxies. *E. Baron and Simon D. M. White.* **322**, 585, 146-C1 (1987)

BARR, P. X-Ray and Optical Observations of X-Ray–Selected BL Lacertae Objects. *P. Giommi, P. Barr, B. Garilli, I. M. Gioia, T. Maccacaro, D. Maccagni, and R. E. Schild.* **322**, 662, 146-A10 (1987)

BASTIAN, T. S. The Discovery of Nonthermal Radio Emission from Magnetic Bp–Ap Stars. *Stephen A. Drake, David C. Abbott, T. S. Bastian, J. H. Bieging, E. Churchwell, G. Dulk, and Jeffrey L. Linsky.* **322**, 902, 149-F10 (1987)

BASTIEN, PIERRE. Polarization Variability among Wolf-Rayet Stars. I. Linear Polarization of a Complete Sample of Southern Galactic WC Stars. *Nicole St-Louis, Laurent Drissen, Anthony F. J. Moffat, Pierre Bastien, and Santiago Tapia.* **322**, 870, 149-C13 (1987)

Polarization Variability among Wolf-Rayet Stars. II. Linear Polarization as a Complete Sample of Southern Galactic WN Stars. *Laurent Drissen, Nicole St-Louis, Anthony F. J. Moffat, and Pierre Bastien.* **322**, 888, 149-E5 (1987)

BATUSKI, DAVID J. Comparisons of the Spatial Distribution of Abell Clusters against Models with Gaussian Initial Conditions. *David J. Batuski, Adrian L. Melott, and Jack O. Burns.* **322**, 48, 138-D12 (1987)

BEECK, J. A Multispacecraft Study of the Injection and Transport of Solar Energetic Particles. *J. Beeck, G. M. Mason, D. C. Hamilton, G. Wibberenz, H. Kunow, D. Hovestadt, and B. Klecker.* **322**, 1052, 151-D14 (1987)

BEGELMAN, MITCHELL C. Inverse Compton Scattering of Ambient Radiation by a Cold Relativistic Jet: A Source of Beamed, Polarized Continuum in Blazars? *Mitchell C. Begelman and Marek Sikora.* **322**, 650, 146-G12 (1987)

BERRIMAN, GRAHAM. The Discovery of Near-Infrared Polarized Cyclotron Emission in the Intermediate Polar BG Canis Minoris. *Steven C. West, Graham Berriman, and Gary D. Schmidt.* **322**, L35, 145-C7 (1987)

BETHE, H. A. Convection in Supernova Theory. *H. A. Bethe, G. E. Brown, and J. Cooperstein.* **322**, 201, 140-B3 (1987)

BIANCHI, L. Are There Stellar Winds in the Hot Stars of M31? *J. B. Hutchings, Philip Massey, and L. Bianchi.* **322**, L79, 152-B13 (1987)

BIEGING, J. H. The Discovery of Nonthermal Radio Emission from Magnetic Bp–Ap Stars. *Stephen A. Drake, David C. Abbott, T. S. Bastian, J. H. Bieging, E. Churchwell, G. Dulk, and Jeffrey L. Linsky.* **322**, 902, 149-F10 (1987)

BIERMANN, P. L. Synchrotron Emission from Shock Waves in Active Galactic Nuclei. *P. L. Biermann and P. A. Strittmatter.* **322**, 643, 146-G5 (1987)

BIGNAMI, G. F. Diffuse *Einstein* X-Ray Emission from the Region of RCW 49, a Bright Southern Emission Nebula. *A. Goldwurm, P. A. Caraveo, and G. F. Bignami.* **322**, 349, 141-E12 (1987)

BISHOP, JEFFREY L. Axisymmetic Shell Models with Stäckel Potentials. *Jeffrey L. Bishop.* **322**, 618, 146-E7 (1987)

BLACK, JOHN H. Fluorescent Excitation of Interstellar H_2. *John H. Black and Ewine F. van Dishoeck.* **322**, 412, 142-C11 (1987)

Properties of Evolved Mass-losing Stars in the Milky Way and Variations in the Interstellar Dust Composition. *Harley A. Thronson, Jr., William B. Latter, John H. Black, John Bally, and Perry Hacking.* **322**, 770, 148-C5 (1987)

BLOEMEN, J. B. G. M. On Stable Hydrostatic Equilibrium Configurations of the Galaxy and Implications for Its Halo. *J. B. G. M. Bloemen.* **322**, 694, 147-D1 (1987)

BODENHEIMER, PETER H. The Crucial Role of Cooling in the Making of Molecular Clouds and Stars. *Joel E. Tohline, Peter H. Bodenheimer, and Dimitris M. Christodoulou.* **322**, 787, 148-D9 (1987)

BOER, M. *SMM* Hard X-Ray Observations of the Soft Gamma-Ray Repeater 1806 − 20. *C. Kouveliotou, J. P. Norris, T. L. Cline, B. R. Dennis, U. D. Desai, L. E. Orwig, E. E. Fenimore, R. W. Klebesadel, J. G. Laros, J.-L. Atteia, M. Boer, K. Hurley, M. Neil, G. Vedrenne, A. V. Kuznetsov, R. A. Sunyaev, and O. V. Terekhof.* **322**, L21, 145-B8 (1987)

BOLDT, ELIHU. Constraints on Possible Precursor AGN Sources of the Cosmic X-Ray Background. *Elihu Boldt and Darryl Leiter.* **322**, L1, 145-A4 (1987)

BORIAKOFF, V. Observation of the OH 1667 MHz Line toward Comet Halley from the Southern Hemisphere. *E. Bajaja, R. Morras, W. G. L. Pöppel, J. E. Cersosimo, M. C. Martin, J. Mazaro, J. C. Olalde, A. Silva, M. E. Arnal, F. E. Colomb, I. F. Mirabel, and V. Boriakoff.* **322**, 549, 144-A1 (1987)

BRADLEY, STEVEN E. Emission-Line Variability and the Broad-Line Region of Quasi-stellar Objects. I. Time Scales and Photon Densities. *Wei Zheng, E. Margaret Burbidge, Harding E. Smith, Ross D. Cohen,*

and Steven E. Bradley. **322**, 164, 139-F5 (1987)
BRANDENBERGER, ROBERT. Cosmic String Waves. *Albert Stebbins, Shoba Veeraraghavan, Robert Brandenberger, Joseph Silk, and Neil Turok*. **322**, 1, 138-A7 (1987)
BROWN, ALEXANDER. Radio Emission from Pre–Main-Sequence Stars in Corona Australis. *Alexander Brown*. **322**, L31, 145-C3 (1987)
BROWN, G. E. Convection in Supernova Theory. *H. A. Bethe, G. E. Brown, and J. Cooperstein*. **322**, 201, 140-B3 (1987)
BURBIDGE, E. MARGARET. Emission-Line Variability and the Broad-Line Region of Quasi-stellar Objects. I. Time Scales and Photon Densities. *Wei Zheng, E. Margaret Burbidge, Harding E. Smith, Ross D. Cohen, and Steven E. Bradley*. **322**, 164, 139-F5 (1987)
BURNS, JACK O. Comparisons of the Spatial Distribution of Abell Clusters against Models with Gaussian Initial Conditions. *David J. Batuski, Adrian L. Melott, and Jack O. Burns*. **322**, 48, 138-D12 (1987)
BURSTEIN, DAVID. A 1.49 GHz Supplementary Atlas of Spiral Galaxies with *H*-Magnitudes (Abstract of Paper in 1987 December Suppl.). *J. J. Condon, Q. F. Yin, and David Burstein*. **322**, 1075, 151-G1 (1987)
BUZASI, DEREK L. A Flare Event on the Long-Period RS Canum Venaticorum System IM Pegasi. *Derek L. Buzasi, Lawrence W. Ramsey, and David P. Huenemoerder*. **322**, 353, 141-F8 (1987)

CANFIELD, RICHARD C. Impulsive Hα Diagnostics of Electron-Beam–Heated Solar Flare Model Chromospheres. *Richard C. Canfield and Kenneth G. Gayley*. **322**, 999, 150-G10 (1987)
CARAVEO, P. A. Diffuse *Einstein* X-Ray Emission from the Region of RCW 49, a Bright Southern Emission Nebula. *A. Goldwurm, P. A. Caraveo, and G. F. Bignami*. **322**, 349, 141-E12 (1987)
CARDON, B. L. Absolute Oscillator Strengths for 108 Lines of Si I between 163 and 410 Nanometers. *Peter L. Smith, M. C. E. Huber, G. P. Tozzi, H. E. Griesinger, B. L. Cardon, and G. G. Lombardi*. **322**, 573, 144-B12 (1987)
CARLBERG, R. G. The Vertical Structure of Galactic Disks. *R. G. Carlberg*. **322**, 59, 138-E9 (1987)
CARLSON, BARBARA E. Cloud Chemistry on Jupiter. *Barbara E. Carlson, Michael J. Prather, and William B. Rossow*. **322**, 559, 144-A11 (1987)
CARLSTROM, J. E. VLBI Structure of 3C 84 at 89 GHz. *D. C. Backer, M. C. H. Wright, R. L. Plambeck, J. E. Carlstrom, C. R. Masson, A. T. Moffet, A. C. S. Readhead, D. Woody, A. E. E. Rogers, J. M. Moran, C. R. Predmore, and R. L. Dickman*. **322**, 74, 138-F11 (1987)
CERSOSIMO, J. E. Observation of the OH 1667 MHz Line toward Comet Halley from the Southern Hemisphere. *E. Bajaja, R. Morras, W. G. L. Pöppel, J. E. Cersosimo, M. C. Martin, J. Mazaro, J. C. Olalde, A. Silva, M. E. Arnal, F. E. Colomb, I. F. Mirabel, and V. Boriakoff*. **322**, 549, 144-A1 (1987)
CHANCE, DON. Molecules in Galaxies. V. CO Observations of Flocculent and Grand-Design Spirals. *Antony A. Stark, Bruce G. Elmegreen, and Don Chance*. **322**, 64, 138-F1 (1987)
CHANG, C. A. The Effect of a Quasi-stellar Object on Its Host Galaxy: Dynamical and Physical Processes in the Interstellar Medium around a Quasi-stellar Object. *C. A. Chang, A. V. R. Schiano, and A. M. Wolfe*. **322**, 180, 139-G8 (1987)
CHAYER, P. The M31 Globular Cluster System: Erratum. *D. Crampton, A. P. Cowley, D. Schade, and P. Chayer*. **322**, 1074, 151-F12 (1987) (Orig. paper in **288**, 494, 8-B2)
CHENG, F. H. New Considerations on the Broad-Line Regions of Quasars. *J. H. You and F. H. Cheng*. **322**, 174, 139-G2 (1987)
CHERNOFF, DAVID F. Globular Cluster Evolution in the Galaxy: A Global View. *David F. Chernoff and Stuart L. Shapiro*. **322**, 113, 139-B9 (1987)
CHEVALIER, R. A. Late Emission from SN 1987A. *C. Fransson and R. A. Chevalier*. **322**, L15, 145-B2 (1987)
CHRISTODOULOU, DIMITRIS M. The Crucial Role of Cooling in the Making of Molecular Clouds and Stars. *Joel E. Tohline, Peter H. Bodenheimer, and Dimitris M. Christodoulou*. **322**, 787, 148-D9 (1987)
CHUPP, E. L. The Directivity of High-Energy Emission from Solar Flares. II. *Solar Maximum Mission* Observations. *W. Thomas Vestrand, D. J. Forrest, E. L. Chupp, E. Rieger, and G. H. Share*. **322**, 1010, 151-A7 (1987)
CHURCHWELL, E. The Discovery of Nonthermal Radio Emission from Magnetic Bp–Ap Stars. *Stephen A. Drake, David C. Abbott, T. S. Bastian, J. H. Bieging, E. Churchwell, G. Dulk, and Jeffrey L. Linsky*. **322**, 902, 149-F10 (1987)
CLINE, T. L. *SMM* Hard X-Ray Observations of the Soft Gamma-Ray Repeater 1806 − 20. *C. Kouveliotou, J. P. Norris, T. L. Cline, B. R. Dennis, U. D. Desai, L. E. Orwig, E. E. Fenimore, R. W. Klebesadel, J. G. Laros, J.-L. Atteia, M. Boer, K. Hurley, M. Neil, G. Vedrenne, A. V. Kuznetsov, R. A. Sunyaev, and O. V. Terekhof*. **322**, L21, 145-B8 (1987)
COHEN, MARTIN. Near-Infrared H_2 Emission from Herbig-Haro Objects. I. A Survey of Low-Excitation Objects. *Richard D. Schwartz, Martin Cohen, and Peredur M. Williams*. **322**, 403, 142-C2 (1987)
COHEN, R. S. A Composite CO Survey of the Entire Milky Way. *T. M. Dame, H. Ungerechts, R. S. Cohen, E. J. de Geus, I. A. Grenier, J. May, D. C. Murphy, L.-A. Nyman, and P. Thaddeus*. **322**, 706, 147-D13 (1987)
COHEN, ROSS D. Emission-Line Variability and the Broad-Line Region of Quasi-stellar Objects. I. Time Scales and Photon Densities. *Wei Zheng, E. Margaret Burbidge, Harding E. Smith, Ross D. Cohen, and Steven E. Bradley*. **322**, 164, 139-F5 (1987)
COLOMB, F. E. Observation of the OH 1667 MHz Line toward Comet Halley from the Southern Hemisphere. *E. Bajaja, R. Morras, W. G. L. Pöppel, J. E. Cersosimo, M. C. Martin, J. Mazaro, J. C. Olalde, A. Silva, M. E. Arnal, F. E. Colomb, I. F. Mirabel, and V. Boriakoff*. **322**, 549, 144-A1 (1987)
COMBES, F. The Interstellar Clouds toward 3C 154 and 3C 353. *S. R. Federman, Neal J. Evans II, R. F. Willson, E. Falgarone, F. Combes, and B. M. Scheufele*. **322**, 960, 150-D4 (1987)
CONDON, J. J. A 1.49 GHz Supplementary Atlas of Spiral Galaxies with *H*-Magnitudes (Abstract of Paper in 1987 December Suppl.). *J. J. Condon, Q. F. Yin, and David Burstein*. **322**, 1075, 151-G1 (1987)
A 1.49 GHz Atlas of Spiral Galaxies with $BT \leq +12$ and $\gamma \geq -45°$ (Abstract of Paper in 1987 December Suppl.). *J. J. Condon*. **322**, 1075, 151-G1 (1987)
Near-Infrared Observations of Submillijansky Radio Sources: Evidence for a Population of Starburst Galaxies at Intermediate Redshifts. *Trinh X. Thuan and J. J. Condon*. **322**, L9, 145-A11 (1987)
COOPERSTEIN, J. Convection in Supernova Theory. *H. A. Bethe, G. E. Brown, and J. Cooperstein*. **322**, 201, 140-B3 (1987)
CORDES, JAMES M. VLA and Low-Frequency VLBI Observations of the Radio Source 0503 + 467: Austere Constraints on Interstellar Scattering in Two Media. *Steven R. Spangler, Alan L. Fey, and James M. Cordes*. **322**, 909, 149-G3 (1987)
COWLEY, A. P. The M31 Globular Cluster System: Erratum. *D. Crampton, A. P. Cowley, D. Schade, and P. Chayer*. **322**, 1074, 151-F12 (1987) (Orig. paper in **288**, 494, 8-B2)
CRAMPTON, D. The M31 Globular Cluster System: Erratum. *D. Crampton, A. P. Cowley, D. Schade, and P. Chayer*. **322**, 1074, 151-F12 (1987) (Orig. paper in **288**, 494, 8-B2)
CRANNELL, C. J. The High-Energy X-Ray Spectrum of Black Hole Candidate GX 339 − 4 during a Transition. *J. F. Dolan, C. J. Crannell, B. R. Dennis, and L. E. Orwig*. **322**, 324, 141-D1 (1987)

DALY, RUTH A. The Origin of the Diffuse X-Ray Background and the Formation of Galaxies and Voids. *Ruth A. Daly*. **322**, 20, 138-B12 (1987)
DAME, T. M. A Composite CO Survey of the Entire Milky Way. *T. M. Dame, H. Ungerechts, R. S. Cohen, E. J. de Geus, I. A. Grenier, J. May, D. C. Murphy, L.-A. Nyman, and P. Thaddeus*. **322**, 706, 147-D13 (1987)
DAVIS, SUMNER P. The Near-Infrared Spectrum of the FeH Molecule (Abstract of Paper in 1987 December Suppl.). *John G. Phillips, Sumner P. Davis, Bo Lindgren, and Walter J. Balfour*. **322**, 1077, 151-G3 (1987)
DE GEUS, E. J. A Composite CO Survey of the Entire Milky Way. *T. M. Dame, H. Ungerechts, R. S. Cohen, E. J. de Geus, I. A. Grenier, J. May, D. C. Murphy, L.-A. Nyman, and P. Thaddeus*. **322**, 706, 147-D13 (1987)
DENNIS, B. R. The High-Energy X-Ray Spectrum of Black Hole Candidate GX 339 − 4 during a Transition. *J. F. Dolan, C. J. Crannell, B. R. Dennis, and L. E. Orwig*. **322**, 324, 141-D1 (1987)
SMM Hard X-Ray Observations of the Soft Gamma-Ray Repeater 1806 − 20. *C. Kouveliotou, J. P. Norris, T. L. Cline, B. R. Dennis, U. D. Desai, L. E. Orwig, E. E. Fenimore, R. W. Klebesadel, J. G. Laros, J.-L. Atteia, M. Boer, K. Hurley, M. Neil, G. Vedrenne, A. V. Kuznetsov, R. A. Sunyaev, and O. V. Terekhof*. **322**, L21, 145-B8 (1987)
DESAI, U. D. *SMM* Hard X-Ray Observations of the Soft Gamma-Ray Repeater 1806 − 20. *C. Kouveliotou, J. P. Norris, T. L. Cline, B. R. Dennis, U. D. Desai, L. E. Orwig, E. E. Fenimore, R. W. Klebesadel, J. G. Laros, J.-L. Atteia, M. Boer, K. Hurley, M. Neil, G. Vedrenne, A. V. Kuznetsov, R. A. Sunyaev, and O. V. Terekhof*. **322**, L21, 145-B8 (1987)
DICKENS, R. J. Fourier Coefficients of the RR Lyrae Variables in NGC 6171. *R. F. Stellingwerf and R. J. Dickens*. **322**, 133, 139-D2 (1987)
DICKEY, JOHN M. Arecibo Observations of *IRAS* Galaxies at 21 and 18 Centimeters Wavelengths. *Robert W. Garwood, George Helou, and John M. Dickey*. **322**, 88, 138-G11 (1987)
DICKMAN, R. L. VLBI Structure of 3C 84 at 89 GHz. *D. C. Backer, M. C.*

H. Wright, R. L. Plambeck, J. E. Carlstrom, C. R. Masson, A. T. Moffet, A. C. S. Readhead, D. Woody, A. E. E. Rogers, J. M. Moran, C. R. Predmore, and R. L. Dickman. **322**, 74, 138-F11 (1987)
Velocity Waves in 21 Centimeter Self-Absorption toward the Taurus Molecular Complex. *W. L. H. Shuter, R. L. Dickman, and C. Klatt*. **322**, L103, 152-D8 (1987)
DJORGOVSKI, S. A Preliminary Survey of Collapsed Cores in the Magellanic Clouds' Globular Clusters. *G. Meylan and S. Djorgovski*. **322**, L91, 152-C10 (1987)
DODERO, M. A. Simulations of the Ca XIX Spectral Emission from a Flaring Solar Cromal Loop. I. Thermal Case. *E. Antonucci, M. A. Dodero, G. Peres, S. Serio, and R. Rosner*. **322**, 522, 143-F1 (1987)
DOLAN, J. F. The High-Energy X-Ray Spectrum of Black Hole Candidate GX 339 − 4 during a Transition. *J. F. Dolan, C. J. Crannell, B. R. Dennis, and L. E. Orwig*. **322**, 324, 141-D1 (1987)
DOPITA, M. A. The Ionization Effects of Shock Breakout in SN 1987A. *M. A. Dopita, S. J. Meatheringham, P. Nulsen, and P. R. Wood*. **322**, L85, 152-C5 (1987)
DRAKE, STEPHEN A. The Discovery of Nonthermal Radio Emission from Magnetic Bp–Ap Stars. *Stephen A. Drake, David C. Abbott, T. S. Bastian, J. H. Bieging, E. Churchwell, G. Dulk, and Jeffrey L. Linsky*. **322**, 902, 149-F10 (1987)
DRISSEN, LAURENT. Polarization Variability among Wolf-Rayet Stars. I. Linear Polarization of a Complete Sample of Southern Galactic WC Stars. *Nicole St-Louis, Laurent Drissen, Anthony F. J. Moffat, Pierre Bastien, and Santiago Tapia*. **322**, 870, 149-C13 (1987)
Polarization Variability among Wolf-Rayet Stars. II. Linear Polarization as a Complete Sample of Southern Galactic WN Stars. *Laurent Drissen, Nicole St-Louis, Anthony F. J. Moffat, and Pierre Bastien*. **322**, 888, 149-E5 (1987)
DULK, G. The Discovery of Nonthermal Radio Emission from Magnetic Bp–Ap Stars. *Stephen A. Drake, David C. Abbott, T. S. Bastian, J. H. Bieging, E. Churchwell, G. Dulk, and Jeffrey L. Linsky*. **322**, 902, 149-F10 (1987)
DUPUIS, J. Selective Mass Loss, Abundance Anomalies, and Helium-rich Stars. *G. Michaud, J. Dupuis, G. Fontaine, and T. Montmerle*. **322**, 302, 141-B7 (1987)
DWEK, E. Large-Scale Galactic Dust Morphology and Physical Conditions from *IRAS* Observations. *T. J. Sodroski, E. Dwek, M. G. Hauser, and F. J. Kerr*. **322**, 101, 139-A10 (1987)
DWEK, ELI. The Infrared Diagnostic of a Dusty Plasma with Applications to Supernova Remnants. *Eli Dwek*. **322**, 812, 148-F6 (1987)
DWYER, ROBERT. Cosmic-Ray Elemental Abundances from 1 to 10 GeV per AMU for Boron through Nickel. *Robert Dwyer and Peter Meyer*. **322**, 981, 150-E12 (1987)

ELLISON, B. N. CO Emission from Centaurus A. *T. G. Phillips, B. N. Ellison, J. B. Keene, R. B. Leighton, R. J. Howard, C. R. Masson, D. B. Sanders, B. Veidt, and K. Young*. **322**, L73, 152-B8 (1987)
ELMEGREEN, BRUCE G. Molecules in Galaxies. V. CO Observations of Flocculent and Grand-Design Spirals. *Antony A. Stark, Bruce G. Elmegreen, and Don Chance*. **322**, 64, 138-F1 (1987)
ELSNER, R. F. The Effect of Decay of the Amplitude of Oscillation on Random Process Models for QPO X-Ray Stars. *N. Shibazaki, R. F. Elsner, and M. C. Weisskopf*. **322**, 831, 149-A1 (1987)
EVANS, NEAL J., II. The Interstellar Clouds toward 3C 154 and 3C 353. *S. R. Federman, Neal J. Evans II, R. F. Willson, E. Falgarone, F. Combes, and B. M. Scheufele*. **322**, 960, 150-D4 (1987)

FAGUNDES, H. V. A Search for QSOs to Fit a Cosmological Model with Flat, Closed Spatial Sections. *H. V. Fagundes and U. F. Wichoski*. **322**, L5, 145-A8 (1987)
FALGARONE, E. The Interstellar Clouds toward 3C 154 and 3C 353. *S. R. Federman, Neal J. Evans II, R. F. Willson, E. Falgarone, F. Combes, and B. M. Scheufele*. **322**, 960, 150-D4 (1987)
FEDERMAN, S. R. The Interstellar Clouds toward 3C 154 and 3C 353. *S. R. Federman, Neal J. Evans II, R. F. Willson, E. Falgarone, F. Combes, and B. M. Scheufele*. **322**, 960, 150-D4 (1987)
FENIMORE, E. E. *SMM* Hard X-Ray Observations of the Soft Gamma-Ray Repeater 1806 − 20. *C. Kouveliotou, J. P. Norris, T. L. Cline, B. R. Dennis, U. D. Desai, L. E. Orwig, E. E. Fenimore, R. W. Klebesadel, J. G. Laros, J.-L. Atteia, M. Boer, K. Hurley, M. Neil, G. Vedrenne, A. V. Kuznetsov, R. A. Sunyaev, and O. V. Terekhof*. **322**, L21, 145-B8 (1987)
FEY, ALAN L. VLA and Low-Frequency VLBI Observations of the Radio Source 0503 + 467: Austere Constraints on Interstellar Scattering in Two Media. *Steven R. Spangler, Alan L. Fey, and James M. Cordes*. **322**, 909, 149-G3 (1987)
FINK, H. X-Ray Observations of Solar Flares with the *Einstein* Observatory. *J. H. M. M. Schmitt, F. R. Harnden, Jr., and H. Fink*. **322**, 1023, 151-B6 (1987)
FIX, JOHN D. A Radio Search for Crab-like Nebulae in M33. *Stephen P. Reynolds and John D. Fix*. **322**, 673, 147-B7 (1987)
FONTAINE, G. Selective Mass Loss, Abundance Anomalies, and Helium-rich Stars. *G. Michaud, J. Dupuis, G. Fontaine, and T. Montmerle*. **322**, 302, 141-B7 (1987)
FORREST, D. J. The Directivity of High-Energy Emission from Solar Flares. II. *Solar Maximum Mission* Observations. *W. Thomas Vestrand, D. J. Forrest, E. L. Chupp, E. Rieger, and G. H. Share*. **322**, 1010, 151-A7 (1987)
FRANSSON, C. Late Emission from SN 1987A. *C. Fransson and R. A. Chevalier*. **322**, L15, 145-B2 (1987)
FULLER, G. M. Resonant Neutrino Oscillations and Stellar Collapse. *G. M. Fuller, R. W. Mayle, J. R. Wilson, and D. N. Schramm*. **322**, 795, 148-E3 (1987)

GARILLI, B. X-Ray and Optical Observations of X-Ray–Selected BL Lacertae Objects. *P. Giommi, P. Barr, B. Garilli, I. M. Gioia, T. Maccacaro, D. Maccagni, and R. E. Schild*. **322**, 662, 146-A10 (1987)
GARRISON, R. F. The Early A Type Stars: Refined MK Classification, Confrontation with Strömgren Photometry and the Effects of Rotation (Abstract of Paper in 1987 December Suppl.). *R. O. Gray and R. F. Garrison*. **322**, 1076, 151-G2 (1987)
GARWOOD, ROBERT W. Arecibo Observations of *IRAS* Galaxies at 21 and 18 Centimeters Wavelengths. *Robert W. Garwood, George Helou, and John M. Dickey*. **322**, 88, 138-G11 (1987)
GAYLEY, KENNETH G. Impulsive Hα Diagnostics of Electron-Beam–Heated Solar Flare Model Chromospheres. *Richard C. Canfield and Kenneth G. Gayley*. **322**, 999, 150-G10 (1987)
GEHRELS, NEIL. Prospects for Gamma-Ray Line Observations of Individual Supernovae. *Neil Gehrels, Marvin Leventhal, and Crawford J. MacCallum*. **322**, 215, 140-C3 (1987)
GELDZAHLER, BARRY. Search for X-Ray Emission from the Radio Lobes of Scorpius X-1. *Barry Geldzahler and Paul Hertz*. **322**, 342, 141-E5 (1987)
GENZEL, R. Submillimeter and Far-Infrared Spectroscopy of M17 and S106: UV-Heated, Quiescent Molecular Gas? *A. I. Harris, J. Stutzki, R. Genzel, J. B. Lugten, G. J. Stacey, and D. T. Jaffe*. **322**, L49, 145-D6 (1987)
GIOIA, I. M. X-Ray and Optical Observations of X-Ray–Selected BL Lacertae Objects. *P. Giommi, P. Barr, B. Garilli, I. M. Gioia, T. Maccacaro, D. Maccagni, and R. E. Schild*. **322**, 662, 146-A10 (1987)
GIOMMI, P. X-Ray and Optical Observations of X-Ray–Selected BL Lacertae Objects. *P. Giommi, P. Barr, B. Garilli, I. M. Gioia, T. Maccacaro, D. Maccagni, and R. E. Schild*. **322**, 662, 146-A10 (1987)
GLASSGOLD, ALFRED E. Radio Observations of Carbon Monoxide toward Zeta Ophiuchi: Velocity Structure, Isotopic Abundances, and Physical Properties. *William D. Langer, Alfred E. Glassgold, and Robert W. Wilson*. **322**, 450, 142-G9 (1987)
GOLDWURM, A. Diffuse *Einstein* X-Ray Emission from the Region of RCW 49, a Bright Southern Emission Nebula. *A. Goldwurm, P. A. Caraveo, and G. F. Bignami*. **322**, 349, 141-E12 (1987)
GRADY, C. A. Recurrent Episodic Mass Loss in a B2e Star: 66 Ophiuchi, 1982–1985 (Abstract of Paper in 1987 December Suppl.). *C. A. Grady, George Sonneborn, Chi-Chao Wu, and H. F. Henrichs*. **322**, 1077, 151-G3 (1987)
GRAY, DAVID F. An Analysis of the Photospheric Line Profiles in F, G, and K Supergiants. *David F. Gray and C. G. Toner*. **322**, 360, 141-G1 (1987)
GRAY, R. O. The Early A Type Stars: Refined MK Classification, Confrontation with Strömgren Photometry and the Effects of Rotation (Abstract of Paper in 1987 December Suppl.). *R. O. Gray and R. F. Garrison*. **322**, 1076, 151-G2 (1987)
GREEN, RICHARD F. PG 1411 + 442: The Nearest Broad Absorption Line Quasar. *Matthew A. Malkan, Richard F. Green, and John B. Hutchings*. **322**, 729, 147-G6 (1987)
GRENIER, I. A. A Composite CO Survey of the Entire Milky Way. *T. M. Dame, H. Ungerechts, R. S. Cohen, E. J. de Geus, I. A. Grenier, J. May, D. C. Murphy, L.-Å. Nyman, and P. Thaddeus*. **322**, 706, 147-D13 (1987)
GRIESINGER, H. E. Absolute Oscillator Strengths for 108 Lines of Si I between 163 and 410 Nanometers. *Peter L. Smith, M. C. E. Huber, G. P. Tozzi, H. E. Griesinger, B. L. Cardon, and G. G. Lombardi*. **322**, 573, 144-B12 (1987)

HACKING, PERRY. Properties of Evolved Mass-losing Stars in the Milky Way and Variations in the Interstellar Dust Composition. *Harley A. Thronson, Jr., William B. Latter, John H. Black, John Bally, and Perry Hacking*. **322**, 770, 148-C5 (1987)
HAMILTON, D. C. A Multispacecraft Study of the Injection and Transport

of Solar Energetic Particles. *J. Beeck, G. M. Mason, D. C. Hamilton, G. Wibberenz, H. Kunow, D. Hovestadt, and B. Klecker*. **322**, 1052, 151-D14 (1987)

HARNDEN, F. R., JR. X-Ray Observations of Solar Flares with the *Einstein* Observatory. *J. H. M. M. Schmitt, F. R. Harnden, Jr., and H. Fink*. **322**, 1023, 151-B6 (1987)

HARRIS, A. I. Submillimeter and Far-Infrared Spectroscopy of M17 and S106: UV-Heated, Quiescent Molecular Gas? *A. I. Harris, J. Stutzki, R. Genzel, J. B. Lugten, G. J. Stacey, and D. T. Jaffe*. **322**, L49, 145-D6 (1987)

HARRIS, A. W. Single Gaussian Curve of Growth Abundance Determinations from Ultraviolet Interstellar Absorption-Line Data. *A. W. Harris*. **322**, 368, 141-G9 (1987)

HARTMANN, L. High Spectral Resolution Infrared Observations of V1057 Cygni. *L. Hartmann and S. J. Kenyon*. **322**, 393, 142-B6 (1987)

HAUSER, M. G. Large-Scale Galactic Dust Morphology and Physical Conditions from *IRAS* Observations. *T. J. Sodroski, E. Dwek, M. G. Hauser, and F. J. Kerr*. **322**, 101, 139-A10 (1987)

HEISE, J. Determination of Photospheric Helium Abundances for the Hot White Dwarfs LB 1663 and CD −38°10980 from *EXOSAT* Soft X-Ray Photometry. *F. B. S. Paerels, J. Heise, S. M. Kahn, and R. D. Rogers*. **322**, 315, 141-C6 (1987)

HELFAND, D. J. X-Ray Observations of the Supernova Remnant N103B in the Large Magellanic Cloud. *K. P. Singh, N. J. Westergaard, H. W. Schnopper, and D. J. Helfand*. **322**, 80, 138-G3 (1987)

HELOU, GEORGE. Arecibo Observations of *IRAS* Galaxies at 21 and 18 Centimeters Wavelengths. *Robert W. Garwood, George Helou, and John M. Dickey*. **322**, 88, 138-G11 (1987)

HENRICHS, H. F. Recurrent Episodic Mass Loss in a B2e Star: 66 Ophiuchi, 1982–1985 (Abstract of Paper in 1987 December Suppl.). *C. A. Grady, George Sonneborn, Chi-Chao Wu, and H. F. Henrichs*. **322**, 1077, 151-G3 (1987)

HENRY, RICHARD B. C. Predicted [Ni II] Infrared Line Strengths in the Crab Nebula and IC 443. *Richard B. C. Henry*. **322**, 399, 142-B12 (1987)

HERSHKOWITZ, STEPHEN. Spectral Flux from Low-Density Photospheres: Low-Temperature Results. *Stephen Hershkowitz and Robert V. Wagoner*. **322**, 967, 150-D11 (1987)

HERTZ, PAUL. Search for X-Ray Emission from the Radio Lobes of Scorpius X-1. *Barry Geldzahler and Paul Hertz*. **322**, 342, 141-E5 (1987)

HO, PAUL T. P. Hot Gas in the Nucleus of IC 342: Detection of J = 3–2 CO Emission. *Paul T. P. Ho, Jean L. Turner, and Robert N. Martin*. **322**, L67, 152-B3 (1987)

HOLLENBACH, DAVID J. Radio Recombination Lines from Fast Shocks in Molecular Clouds, with Application to Bipolar Flows. *Christopher F. McKee and David J. Hollenbach*. **322**, 275, 140-G7 (1987)

HOSHI, R. X-Ray Irradiated Accretion Disks and Bimodal States. *H. Inoue and R. Hoshi*. **322**, 320, 141-C11 (1987)

HOVESTADT, D. A Multispacecraft Study of the Injection and Transport of Solar Energetic Particles. *J. Beeck, G. M. Mason, D. C. Hamilton, G. Wibberenz, H. Kunow, D. Hovestadt, and B. Klecker*. **322**, 1052, 151-D14 (1987)

HOWARD, R. J. CO Emission from Centaurus A. *T. G. Phillips, B. N. Ellison, J. B. Keene, R. B. Leighton, R. J. Howard, C. R. Masson, D. B. Sanders, B. Veidt, and K. Young*. **322**, L73, 152-B8 (1987)

HUBER, M. C. E. Absolute Oscillator Strengths for 108 Lines of Si I between 163 and 410 Nanometers. *Peter L. Smith, M. C. E. Huber, G. P. Tozzi, H. E. Griesinger, B. L. Cardon, and G. G. Lombardi*. **322**, 573, 144-B12 (1987)

HUENEMOERDER, DAVID P. A Flare Event on the Long-Period RS Canum Venaticorum System IM Pegasi. *Derek L. Buzasi, Lawrence W. Ramsey, and David P. Huenemoerder*. **322**, 353, 141-F8 (1987)

HURLEY, K. *SMM* Hard X-Ray Observations of the Soft Gamma-Ray Repeater 1806 − 20. *C. Kouveliotou, J. P. Norris, T. L. Cline, B. R. Dennis, U. D. Desai, L. E. Orwig, E. E. Fenimore, R. W. Klebesadel, J. G. Laros, J.-L. Atteia, M. Boer, K. Hurley, M. Neil, G. Vedrenne, A. V. Kuznetsov, R. A. Sunyaev, and O. V. Terekhof*. **322**, L21, 145-B8 (1987)

HUTCHINGS, J. B. Are There Stellar Winds in the Hot Stars of M31? *J. B. Hutchings, Philip Massey, and L. Bianchi*. **322**, L79, 152-B13 (1987)

HUTCHINGS, JOHN B. PG 1411 + 442: The Nearest Broad Absorption Line Quasar. *Matthew A. Malkan, Richard F. Green, and John B. Hutchings*. **322**, 729, 147-G6 (1987)

IGLESIAS, C. A. Reexamination of the Metal Contribution to Astrophysical Opacity. *C. A. Iglesias, F. J. Rogers, and B. G. Wilson*. **322**, L45, 145-D2 (1987)

INOUE, H. X-Ray Irradiated Accretion Disks and Bimodal States. *H. Inoue and R. Hoshi*. **322**, 320, 141-C11 (1987)

ISHIKAWA, SHIN-ICHI. Laboratory and Astronomical Detection of the Cyclic H_3H Radical. *Satoshi Yamamoto, Shuji Saito, Masatoshi Ohishi, Hiroko Suzuki, Shin-Ichi Ishikawa, Norio Kaifu, and Akinori Murakami*. **322**, L55, 145-D12 (1987)

ITOH, NAOKI. Axion Bremsstrahlung in Dense Stars. *Masayuki Nakagawa, Yasuharu Kohyama, and Naoki Itoh*. **322**, 291, 141-A9 (1987)

Neutrino-Pair Bremsstrahlung in Dense Stars. IV. Phonon Constributions in the Crystalline Lattice Phase: Erratum. *Naoki Itoh, Yasuharu Kohyama, Noriyoshi Matsumoto, and Midori Seki*. **322**, 584, 144-C9 (1987) (Orig. paper in **285**, 304, 113-C2)

JAFFE, D. T. Submillimeter and Far-Infrared Spectroscopy of M17 and S106: UV-Heated, Quiescent Molecular Gas? *A. I. Harris, J. Stutzki, R. Genzel, J. B. Lugten, G. J. Stacey, and D. T. Jaffe*. **322**, L49, 145-D6 (1987)

JOHNSON, SCOTT B. The "Alternative X" Question: What Causes the Strong Molecular Bands and Damping Lines in the Very Strong Lined (Super–Metal-rich) Stars? *Benjamin J. Taylor and Scott B. Johnson*. **322**, 930, 150-B2 (1987)

JOSS, P. C. The Evolutionary Status of 4U 1820 − 30. *S. Rappaport, L. A. Nelson, C. P. Ma, and P. C. Joss*. **322**, 842, 149-A12 (1987)

KAFTANDJIAN, V. P. Partial Redistribution in High-Density, Highly Ionized Plasmas. *B. Talin, R. Stamm, V. P. Kaftandjian, and Lewis Klein*. **322**, 804, 148-E12 (1987)

KAHN, S. M. Determination of Photospheric Helium Abundances for the Hot White Dwarfs LB 1663 and CD −38°10980 from *EXOSAT* Soft X-Ray Photometry. *F. B. S. Paerels, J. Heise, S. M. Kahn, and R. D. Rogers*. **322**, 315, 141-C6 (1987)

KAIFU, NORIO. Laboratory and Astronomical Detection of the Cyclic H_3H Radical. *Satoshi Yamamoto, Shuji Saito, Masatoshi Ohishi, Hiroko Suzuki, Shin-Ichi Ishikawa, Norio Kaifu, and Akinori Murakami*. **322**, L55, 145-D12 (1987)

KEENE, J. B. CO Emission from Centaurus A. *T. G. Phillips, B. N. Ellison, J. B. Keene, R. B. Leighton, R. J. Howard, C. R. Masson, D. B. Sanders, B. Veidt, and K. Young*. **322**, L73, 152-B8 (1987)

KENYON, S. J. High Spectral Resolution Infrared Observations of V1057 Cygni. *L. Hartmann and S. J. Kenyon*. **322**, 393, 142-B6 (1987)

KERR, F. J. Large-Scale Galactic Dust Morphology and Physical Conditions from *IRAS* Observations. *T. J. Sodroski, E. Dwek, M. G. Hauser, and F. J. Kerr*. **322**, 101, 139-A10 (1987)

KIRK, J. G. Particle Acceleration at Shocks: A Monte Carlo Method. *J. G. Kirk and P. Schneider*. **322**, 256, 140-F2 (1987)

KLATT, C. Velocity Waves in 21 Centimeter Self-Absorption toward the Taurus Molecular Complex. *W. L. H. Shuter, R. L. Dickman, and C. Klatt*. **322**, L103, 152-D8 (1987)

KLEBESADEL, R. W. *SMM* Hard X-Ray Observations of the Soft Gamma-Ray Repeater 1806 − 20. *C. Kouveliotou, J. P. Norris, T. L. Cline, B. R. Dennis, U. D. Desai, L. E. Orwig, E. E. Fenimore, R. W. Klebesadel, J. G. Laros, J.-L. Atteia, M. Boer, K. Hurley, M. Neil, G. Vedrenne, A. V. Kuznetsov, R. A. Sunyaev, and O. V. Terekhof*. **322**, L21, 145-B8 (1987)

KLECKER, B. A Multispacecraft Study of the Injection and Transport of Solar Energetic Particles. *J. Beeck, G. M. Mason, D. C. Hamilton, G. Wibberenz, H. Kunow, D. Hovestadt, and B. Klecker*. **322**, 1052, 151-D14 (1987)

KLEIN, LEWIS. Partial Redistribution in High-Density, Highly Ionized Plasmas. *B. Talin, R. Stamm, V. P. Kaftandjian, and Lewis Klein*. **322**, 804, 148-E12 (1987)

KOENIGSBERGER, G. Atmospheric Eclipses in the SMC Wolf-Rayet Eclipsing Binary HD 5980: The Heavy versus the Light Metal Abundance. *G. Koenigsberger, A. F. J. Moffat, and L. H. Auer*. **322**, L41, 145-C12 (1987)

KOESTER, D. Gravitational Redshift and Mass-Radius Relation in White Dwarfs. *D. Koester*. **322**, 852, 149-B8 (1987)

KOHYAMA, YASUHARU. Axion Bremsstrahlung in Dense Stars. *Masayuki Nakagawa, Yasuharu Kohyama, and Naoki Itoh*. **322**, 291, 141-A9 (1987)

Neutrino-Pair Bremsstrahlung in Dense Stars. IV. Phonon Constributions in the Crystalline Lattice Phase: Erratum. *Naoki Itoh, Yasuharu Kohyama, Noriyoshi Matsumoto, and Midori Seki*. **322**, 584, 144-C9 (1987) (Orig. paper in **285**, 304, 113-C2)

KOUVELIOTOU, C. *SMM* Hard X-Ray Observations of the Soft Gamma-Ray Repeater 1806 − 20. *C. Kouveliotou, J. P. Norris, T. L. Cline, B. R. Dennis, U. D. Desai, L. E. Orwig, E. E. Fenimore, R. W. Klebesadel, J. G. Laros, J.-L. Atteia, M. Boer, K. Hurley, M. Neil, G. Vedrenne, A. V. Kuznetsov, R. A. Sunyaev, and O. V. Terekhof*. **322**, L21, 145-B8 (1987)

KUNOW, H. A Multispacecraft Study of the Injection and Transport of Solar Energetic Particles. *J. Beeck, G. M. Mason, D. C. Hamilton, G.*

Wibberenz, H. Kunow, D. Hovestadt, and B. Klecker. **322**, 1052, 151-D14 (1987)

KURUCZ, ROBERT L. OH and CH Continuous Opacity in Solar and Stellar Atmospheres. *Robert L. Kurucz, Ewine F. van Dishoeck, and S. P. Tarafdar*. **322**, 992, 150-F13 (1987)

KUZNETSOV, A. V. *SMM* Hard X-Ray Observations of the Soft Gamma-Ray Repeater 1806 − 20. *C. Kouveliotou, J. P. Norris, T. L. Cline, B. R. Dennis, U. D. Desai, L. E. Orwig, E. E. Fenimore, R. W. Klebesadel, J. G. Laros, J.-L. Atteia, M. Boer, K. Hurley, M. Neil, G. Vedrenne, A. V. Kuznetsov, R. A. Sunyaev, and O. V. Terekhof*. **322**, L21, 145-B8 (1987)

LANG, KENNETH R. Simultaneous *SMM* Flat Crystal Spectrometer and Very Large Array Observations of Solar Active Regions. *Kenneth R. Lang, Robert F. Willson, Kermit L. Smith, and Keith T. Strong*. **322**, 1035, 151-C4 (1987)

Solar Active Region Physical Parameters Inferred from a Thermal Cyclotron Line and Soft X-Ray Spectral Lines. *Kenneth R. Lang, Robert F. Willson, Kermit L. Smith, and Keith T. Strong*. **322**, 1044, 151-D3 (1987)

LANGER, WILLIAM D. Radio Observations of Carbon Monoxide toward Zeta Ophiuchi: Velocity Structure, Isotopic Abundances, and Physical Properties. *William D. Langer, Alfred E. Glassgold, and Robert W. Wilson*. **322**, 450, 142-G9 (1987)

LANZETTA, KENNETH M. An Absorption-Line Survey of 32 QSOs at Red Wavelengths: Properties of the Mg II Absorbers. *Kenneth M. Lanzetta, David A. Turnshek, and Arthur M. Wolfe*. **322**, 739, 148-A2 (1987)

LAROS, J. G. *SMM* Hard X-Ray Observations of the Soft Gamma-Ray Repeater 1806 − 20. *C. Kouveliotou, J. P. Norris, T. L. Cline, B. R. Dennis, U. D. Desai, L. E. Orwig, E. E. Fenimore, R. W. Klebesadel, J. G. Laros, J.-L. Atteia, M. Boer, K. Hurley, M. Neil, G. Vedrenne, A. V. Kuznetsov, R. A. Sunyaev, and O. V. Terekhof*. **322**, L21, 145-B8 (1987)

LATTER, WILLIAM B. Properties of Evolved Mass-losing Stars in the Milky Way and Variations in the Interstellar Dust Composition. *Harley A. Thronson, Jr., William B. Latter, John H. Black, John Bally, and Perry Hacking*. **322**, 770, 148-C5 (1987)

LEAHY, D. A. *Einstein* IPC Imaging and Spectral Observations of the Supernova Remnant HB 9. *D. A. Leahy*. **322**, 917, 150-A1 (1987)

LEE, HYUNG MOK. The Evolution and Final Disintegration of Spherical Stellar Systems in a Steady Galactic Tidal Field. *Hyung Mok Lee and Jeremiah P. Ostriker*. **322**, 123, 139-C6 (1987)

LEIGHTON, R. B. CO Emission from Centaurus A. *T. G. Phillips, B. N. Ellison, J. B. Keene, R. B. Leighton, R. J. Howard, C. R. Masson, D. B. Sanders, B. Veidt, and K. Young*. **322**, L73, 152-B8 (1987)

LEITER, DARRYL. Constraints on Possible Precursor AGN Sources of the Cosmic X-Ray Background. *Elihu Boldt and Darryl Leiter*. **322**, L1, 145-A4 (1987)

LEVENTHAL, MARVIN. Prospects for Gamma-Ray Line Observations of Individual Supernovae. *Neil Gehrels, Marvin Leventhal, and Crawford J. MacCallum*. **322**, 215, 140-C3 (1987)

LI, HE-SHENG. The Scattering of Alfvén Waves by Density Fluctuations. *He-Sheng Li and Ellen G. Zweibel*. **322**, 248, 140-E8 (1987)

LINDGREN, BO. The Near-Infrared Spectrum of the FeH Molecule (Abstract of Paper in 1987 December Suppl.). *John G. Phillips, Sumner P. Davis, Bo Lindgren, and Walter J. Balfour*. **322**, 1077, 151-G3 (1987)

LINSKY, JEFFREY L. The Discovery of Nonthermal Radio Emission from Magnetic Bp–Ap Stars. *Stephen A. Drake, David C. Abbott, T. S. Bastian, J. H. Bieging, E. Churchwell, G. Dulk, and Jeffrey L. Linsky*. **322**, 902, 149-F10 (1987)

LITES, B. W. Stokes Profile Analysis and Vector Magnetic Fields. I. Inversion of Photospheric Lines. *A. Skumanich and B. W. Lites*. **322**, 473, 143-B8 (1987)

The Polarization Properties of Model Sunspots: The Broad-Band Polarization Signature of the Schlüter-Temesvary Representation. *A. Skumanich and B. W. Lites*. **322**, 483, 143-C4 (1987)

LIVIO, MARIO. The Period Distribution and Evolution of Short-Period Cataclysmic Variables. *Brian Warner and Mario Livio*. **322**, L95, 152-C14 (1987)

LOMBARDI, G. G. Absolute Oscillator Strengths for 108 Lines of Si I between 163 and 410 Nanometers. *Peter L. Smith, M. C. E. Huber, G. P. Tozzi, H. E. Griesinger, B. L. Cardon, and G. G. Lombardi*. **322**, 573, 144-B12 (1987)

LOU, Y. Q. Nonlinear Magnetohydrodynamic Waves in a Steady Zonal Circulation for a Shallow Fluid Shell on the Surface of a Rotating Sphere. *Y. Q. Lou*. **322**, 862, 149-C4 (1987)

LUGTEN, J. B. Submillimeter and Far-Infrared Spectroscopy of M17 and S106: UV-Heated, Quiescent Molecular Gas? *A. I. Harris, J. Stutzki, R. Genzel, J. B. Lugten, G. J. Stacey, and D. T. Jaffe*. **322**, L49, 145-D6 (1987)

LUTZ, BARRY L. Ground-based Constraints on the H_3O^+/CO^+ Abundance Ratio and Dust Impact Rate in Comet P/Giacobini-Zinner: Comparison with the *ICE* Spacecraft Results. *R. Mark Wagner, Barry L. Lutz, and S. Wyckoff*. **322**, 544, 143-G9 (1987)

MA, C. P. The Evolutionary Status of 4U 1820 − 30. *S. Rappaport, L. A. Nelson, C. P. Ma, and P. C. Joss*. **322**, 842, 149-A12 (1987)

MACCACARO, T. X-Ray and Optical Observations of X-Ray–Selected BL Lacertae Objects. *P. Giommi, P. Barr, B. Garilli, I. M. Gioia, T. Maccacaro, D. Maccagni, and R. E. Schild*. **322**, 662, 146-A10 (1987)

MACCAGNI, D. X-Ray and Optical Observations of X-Ray–Selected BL Lacertae Objects. *P. Giommi, P. Barr, B. Garilli, I. M. Gioia, T. Maccacaro, D. Maccagni, and R. E. Schild*. **322**, 662, 146-A10 (1987)

MACCALLUM, CRAWFORD J. Prospects for Gamma-Ray Line Observations of Individual Supernovae. *Neil Gehrels, Marvin Leventhal, and Crawford J. MacCallum*. **322**, 215, 140-C3 (1987)

MALKAN, MATTHEW A. PG 1411 + 442: The Nearest Broad Absorption Line Quasar. *Matthew A. Malkan, Richard F. Green, and John B. Hutchings*. **322**, 729, 147-G6 (1987)

MARTIN, M. C. Observation of the OH 1667 MHz Line toward Comet Halley from the Southern Hemisphere. *E. Bajaja, R. Morras, W. G. L. Pöppel, J. E. Cersosimo, M. C. Martin, J. Mazaro, J. C. Olalde, A. Silva, M. E. Arnal, F. E. Colomb, I. F. Mirabel, and V. Boriakoff*. **322**, 549, 144-A1 (1987)

MARTIN, P. G. Carbon Grains in the Envelope of IRC +10216. *P. G. Martin and C. Rogers*. **322**, 374, 142-A1 (1987)

MARTIN, ROBERT N. Hot Gas in the Nucleus of IC 342: Detection of $J = 3–2$ CO Emission. *Paul T. P. Ho, Jean L. Turner, and Robert N. Martin*. **322**, L67, 152-B3 (1987)

MASON, G. M. A Multispacecraft Study of the Injection and Transport of Solar Energetic Particles. *J. Beeck, G. M. Mason, D. C. Hamilton, G. Wibberenz, H. Kunow, D. Hovestadt, and B. Klecker*. **322**, 1052, 151-D14 (1987)

MASSEY, PHILIP. Are There Stellar Winds in the Hot Stars of M31? *J. B. Hutchings, Philip Massey, and L. Bianchi*. **322**, L79, 152-B13 (1987)

MASSON, C. R. VLBI Structure of 3C 84 at 89 GHz. *D. C. Backer, M. C. H. Wright, R. L. Plambeck, J. E. Carlstrom, C. R. Masson, A. T. Moffet, A. C. S. Readhead, D. Woody, A. E. E. Rogers, J. M. Moran, C. R. Predmore, and R. L. Dickman*. **322**, 74, 138-F11 (1987)

CO Emission from Centaurus A. *T. G. Phillips, B. N. Ellison, J. B. Keene, R. B. Leighton, R. J. Howard, C. R. Masson, D. B. Sanders, B. Veidt, and K. Young*. **322**, L73, 152-B8 (1987)

MATSUMOTO, NORIYOSHI. Neutrino-Pair Bremsstrahlung in Dense Stars. IV. Phonon Constributions in the Crystalline Lattice Phase: Erratum. *Naoki Itoh, Yasuharu Kohyama, Noriyoshi Matsumoto, and Midori Seki*. **322**, 584, 144-C9 (1987) (Orig. paper in **285**, 304, 113-C2)

MAY, J. A Composite CO Survey of the Entire Milky Way. *T. M. Dame, H. Ungerechts, R. S. Cohen, E. J. de Geus, I. A. Grenier, J. May, D. C. Murphy, L.-Å. Nyman, and P. Thaddeus*. **322**, 706, 147-D13 (1987)

MAYLE, R. W. Resonant Neutrino Oscillations and Stellar Collapse. *G. M. Fuller, R. W. Mayle, J. R. Wilson, and D. N. Schramm*. **322**, 795, 148-E3 (1987)

MAZARO, J. Observation of the OH 1667 MHz Line toward Comet Halley from the Southern Hemisphere. *E. Bajaja, R. Morras, W. G. L. Pöppel, J. E. Cersosimo, M. C. Martin, J. Mazaro, J. C. Olalde, A. Silva, M. E. Arnal, F. E. Colomb, I. F. Mirabel, and V. Boriakoff*. **322**, 549, 144-A1 (1987)

MAZZALI, PAOLO A. The Ultraviolet Spectrum of Beta Lyrae (Abstract of Paper in 1987 December Suppl.). *Paolo A. Mazzali*. **322**, 1077, 151-G3 (1987)

MCCLURE, ROBERT D. Chemical Enrichment of Halo Protoclusters with Differing Stellar Mass Functions: Erratum. *Graeme H. Smith and Robert D. McClure*. **322**, 1074, 151-F12 (1987) (Orig. paper in **316**, 206, 52-C3)

MCCOOK, GEORGE P. A Catalog of Spectroscopically Indentified White Dwarfs (Abstract of Paper in 1987 December Suppl.). *George P. McCook and Edward M. Sion*. **322**, 1076, 151-G2 (1987)

MCKEE, CHRISTOPHER F. Radio Recombination Lines from Fast Shocks in Molecular Clouds, with Application to Bipolar Flows. *Christopher F. McKee and David J. Hollenbach*. **322**, 275, 140-G7 (1987)

MCKENZIE, D. L. Properties of Solar Coronal Active Regions Deduced from X-Ray Line Spectra. *D. L. McKenzie*. **322**, 512, 143-E5 (1987)

MEATHERINGHAM, S. J. The Ionization Effects of Shock Breakout in SN 1987A. *M. A. Dopita, S. J. Meatheringham, P. Nulsen, and P. R. Wood*. **322**, L85, 152-C5 (1987)

MELNICK, GARY J. H_2O Line Emission from Shocked Gas. *David A. Neufeld and Gary J. Melnick*. **322**, 266, 140-F12 (1987)

MELOTT, ADRIAN L. Comparisons of the Spatial Distribution of Abell Clusters against Models with Gaussian Initial Conditions. *David J. Batuski, Adrian L. Melott, and Jack O. Burns*. **322**, 48, 138-D12 (1987)

MÉSZÁROS, P. The Spectra of Accretion Disks and Their Application to Low-Mass X-Ray Binaries. *Ronald E. Taam and P. Mészáros*. **322**, 329, 141-D6 (1987)

MEYER, PETER. Cosmic-Ray Elemental Abundances from 1 to 10 GeV per AMU for Boron through Nickel. *Robert Dwyer and Peter Meyer*. **322**, 981, 150-E12 (1987)

MEYLAN, G. A Preliminary Survey of Collapsed Cores in the Magellanic Clouds' Globular Clusters. *G. Meylan and S. Djorgovski*. **322**, L91, 152-C10 (1987)

MICHAUD, G. Selective Mass Loss, Abundance Anomalies, and Helium-rich Stars. *G. Michaud, J. Dupuis, G. Fontaine, and T. Montmerle*. **322**, 302, 141-B7 (1987)

MICHEL, F. CURTIS. A Pulsar Emission Model: Observational Tests. *F. Curtis Michel*. **322**, 822, 148-G2 (1987)

MIRABEL, I. F. Observation of the OH 1667 MHz Line toward Comet Halley from the Southern Hemisphere. *E. Bajaja, R. Morras, W. G. L. Pöppel, J. E. Cersosimo, M. C. Martin, J. Mazaro, J. C. Olalde, A. Silva, M. E. Arnal, F. E. Colomb, I. F. Mirabel, and V. Boriakoff*. **322**, 549, 144-A1 (1987)

OH Megamasers in High-Luminosity *IRAS* Galaxies. *I. F. Mirabel and D. B. Sanders*. **322**, 688, 147-C8 (1987)

MOFFAT, A. F. J. Atmospheric Eclipses in the SMC Wolf-Rayet Eclipsing Binary HD 5980: The Heavy versus the Light Metal Abundance. *G. Koenigsberger, A. F. J. Moffat, and L. H. Auer*. **322**, L41, 145-C12 (1987)

MOFFAT, ANTHONY F. J. Polarization Variability among Wolf-Rayet Stars. I. Linear Polarization of a Complete Sample of Southern Galactic WC Stars. *Nicole St-Louis, Laurent Drissen, Anthony F. J. Moffat, Pierre Bastien, and Santiago Tapia*. **322**, 870, 149-C13 (1987)

Polarization Variability among Wolf-Rayet Stars. II. Linear Polarization as a Complete Sample of Southern Galactic WN Stars. *Laurent Drissen, Nicole St-Louis, Anthony F. J. Moffat, and Pierre Bastien*. **322**, 888, 149-E5 (1987)

MOFFET, A. T. VLBI Structure of 3C 84 at 89 GHz. *D. C. Backer, M. C. H. Wright, R. L. Plambeck, J. E. Carlstrom, C. R. Masson, A. T. Moffet, A. C. S. Readhead, D. Woody, A. E. E. Rogers, J. M. Moran, C. R. Predmore, and R. L. Dickman*. **322**, 74, 138-F11 (1987)

MONTMERLE, T. Selective Mass Loss, Abundance Anomalies, and Helium-rich Stars. *G. Michaud, J. Dupuis, G. Fontaine, and T. Montmerle*. **322**, 302, 141-B7 (1987)

MORAN, J. M. VLBI Structure of 3C 84 at 89 GHz. *D. C. Backer, M. C. H. Wright, R. L. Plambeck, J. E. Carlstrom, C. R. Masson, A. T. Moffet, A. C. S. Readhead, D. Woody, A. E. E. Rogers, J. M. Moran, C. R. Predmore, and R. L. Dickman*. **322**, 74, 138-F11 (1987)

MORRAS, R. Observation of the OH 1667 MHz Line toward Comet Halley from the Southern Hemisphere. *E. Bajaja, R. Morras, W. G. L. Pöppel, J. E. Cersosimo, M. C. Martin, J. Mazaro, J. C. Olalde, A. Silva, M. E. Arnal, F. E. Colomb, I. F. Mirabel, and V. Boriakoff*. **322**, 549, 144-A1 (1987)

MORRIS, MARK. The Linear Filaments of the Radio Arc near the Galactic Center. *Farhad Yusef-Zadeh and Mark Morris*. **322**, 721, 147-F7 (1987)

MURAKAMI, AKINORI. Laboratory and Astronomical Detection of the Cyclic H_3H Radical. *Satoshi Yamamoto, Shuji Saito, Masatoshi Ohishi, Hiroko Suzuki, Shin-Ichi Ishikawa, Norio Kaifu, and Akinori Murakami*. **322**, L55, 145-D12 (1987)

MURPHY, D. C. A Composite CO Survey of the Entire Milky Way. *T. M. Dame, H. Ungerechts, R. S. Cohen, E. J. de Geus, I. A. Grenier, J. May, D. C. Murphy, L.-A. Nyman, and P. Thaddeus*. **322**, 706, 147-D13 (1987)

MUSIELAK, ZDZISLAW E. Wave Energy in White Dwarf Atmospheres. I. Magnetohydrodynamic Energy Spectra for Homogeneous DB and Layered DA Stars. *Zdzislaw E. Musielak*. **322**, 234, 140-D8 (1987)

NAKAGAWA, MASAYUKI. Axion Bremsstrahlung in Dense Stars. *Masayuki Nakagawa, Yasuharu Kohyama, and Naoki Itoh*. **322**, 291, 141-A9 (1987)

NECKEL, TH. Temporal Changes of the IRS 5 Jet in L1551. *Th. Neckel and H. J. Staude*. **322**, L27, 145-B13 (1987)

NEIL, M. *SMM* Hard X-Ray Observations of the Soft Gamma-Ray Repeater 1806 − 20. *C. Kouveliotou, J. P. Norris, T. L. Cline, B. R. Dennis, U. D. Desai, L. E. Orwig, E. E. Fenimore, R. W. Klebesadel, J. G. Laros, J.-L. Atteia, M. Boer, K. Hurley, M. Neil, G. Vedrenne, A. V. Kuznetsov, R. A. Sunyaev, and O. V. Terekhof*. **322**, L21, 145-B8 (1987)

NELSON, L. A. The Evolutionary Status of 4U 1820 − 30. *S. Rappaport, L. A. Nelson, C. P. Ma, and P. C. Joss*. **322**, 842, 149-A12 (1987)

NEUFELD, DAVID A. H_2O Line Emission from Shocked Gas. *David A. Neufeld and Gary J. Melnick*. **322**, 266, 140-F12 (1987)

NOMOTO, KEN'ICHI. Evolution of 8–10 $M_\odot$ Stars toward Electron Capture Supernovae. II. Collapse of an O + Ne + Mg Core. *Ken'ichi Nomoto*. **322**, 206, 140-B8 (1987)

NORDTVEDT, K., JR. A Possible Semisecular Variation in Orbital Period of Binary Pulsar System PSR 1913 + 16 and Lorentz Invariance of Gravity. *K. Nordtvedt, Jr.* **322**, 288, 141-A6 (1987)

NORRIS, J. P. *SMM* Hard X-Ray Observations of the Soft Gamma-Ray Repeater 1806 − 20. *C. Kouveliotou, J. P. Norris, T. L. Cline, B. R. Dennis, U. D. Desai, L. E. Orwig, E. E. Fenimore, R. W. Klebesadel, J. G. Laros, J.-L. Atteia, M. Boer, K. Hurley, M. Neil, G. Vedrenne, A. V. Kuznetsov, R. A. Sunyaev, and O. V. Terekhof*. **322**, L21, 145-B8 (1987)

NULSEN, P. The Ionization Effects of Shock Breakout in SN 1987A. *M. A. Dopita, S. J. Meatheringham, P. Nulsen, and P. R. Wood*. **322**, L85, 152-C5 (1987)

NYMAN, L.-Å. A Composite CO Survey of the Entire Milky Way. *T. M. Dame, H. Ungerechts, R. S. Cohen, E. J. de Geus, I. A. Grenier, J. May, D. C. Murphy, L.-Å. Nyman, and P. Thaddeus*. **322**, 706, 147-D13 (1987)

OHISHI, MASATOSHI. Laboratory and Astronomical Detection of the Cyclic H_3H Radical. *Satoshi Yamamoto, Shuji Saito, Masatoshi Ohishi, Hiroko Suzuki, Shin-Ichi Ishikawa, Norio Kaifu, and Akinori Murakami*. **322**, L55, 145-D12 (1987)

OLALDE, J. C. Observation of the OH 1667 MHz Line toward Comet Halley from the Southern Hemisphere. *E. Bajaja, R. Morras, W. G. L. Pöppel, J. E. Cersosimo, M. C. Martin, J. Mazaro, J. C. Olalde, A. Silva, M. E. Arnal, F. E. Colomb, I. F. Mirabel, and V. Boriakoff*. **322**, 549, 144-A1 (1987)

OLDERSHAW, ROBERT L. The Self-similar Cosmological Paradigm: A New Test and Two New Predictions. *Robert L. Oldershaw*. **322**, 34, 138-C12 (1987)

ORWIG, L. E. The High-Energy X-Ray Spectrum of Black Hole Candidate GX 339 − 4 during a Transition. *J. F. Dolan, C. J. Crannell, B. R. Dennis, and L. E. Orwig*. **322**, 324, 141-D1 (1987)

SMM Hard X-Ray Observations of the Soft Gamma-Ray Repeater 1806 − 20. *C. Kouveliotou, J. P. Norris, T. L. Cline, B. R. Dennis, U. D. Desai, L. E. Orwig, E. E. Fenimore, R. W. Klebesadel, J. G. Laros, J.-L. Atteia, M. Boer, K. Hurley, M. Neil, G. Vedrenne, A. V. Kuznetsov, R. A. Sunyaev, and O. V. Terekhof*. **322**, L21, 145-B8 (1987)

OSTRIKER, JEREMIAH P. The Evolution and Final Disintegration of Spherical Stellar Systems in a Steady Galactic Tidal Field. *Hyung Mok Lee and Jeremiah P. Ostriker*. **322**, 123, 139-C6 (1987)

PAERELS, F. B. S. Determination of Photospheric Helium Abundances for the Hot White Dwarfs LB 1663 and CD −38°10980 from *EXOSAT* Soft X-Ray Photometry. *F. B. S. Paerels, J. Heise, S. M. Kahn, and R. D. Rogers*. **322**, 315, 141-C6 (1987)

PATTERSON, JOSEPH. Magnetic Activity, Tides, and Orbital Period Changes in Close Binaries. *James H. Applegate and Joseph Patterson*. **322**, L99, 152-D4 (1987)

PERES, G. Simulations of the Ca XIX Spectral Emission from a Flaring Solar Cronal Loop. I. Thermal Case. *E. Antonucci, M. A. Dodero, G. Peres, S. Serio, and R. Rosner*. **322**, 522, 143-F1 (1987)

PHILLIPS, JOHN G. The Near-Infrared Spectrum of FeH Molecule (Abstract of Paper in 1987 December Suppl.). *John G. Phillips, Sumner P. Davis, Bo Lindgren, and Walter J. Balfour*. **322**, 1077, 151-G3 (1987)

PHILLIPS, T. G. CO Emission from Centaurus A. *T. G. Phillips, B. N. Ellison, J. B. Keene, R. B. Leighton, R. J. Howard, C. R. Masson, D. B. Sanders, B. Veidt, and K. Young*. **322**, L73, 152-B8 (1987)

PLAMBECK, R. L. VLBI Structure of 3C 84 at 89 GHz. *D. C. Backer, M. C. H. Wright, R. L. Plambeck, J. E. Carlstrom, C. R. Masson, A. T. Moffet, A. C. S. Readhead, D. Woody, A. E. E. Rogers, J. M. Moran, C. R. Predmore, and R. L. Dickman*. **322**, 74, 138-F11 (1987)

PÖPPEL, W. G. L. Observation of the OH 1667 MHz Line toward Comet Halley from the Southern Hemisphere. *E. Bajaja, R. Morras, W. G. L. Pöppel, J. E. Cersosimo, M. C. Martin, J. Mazaro, J. C. Olalde, A. Silva, M. E. Arnal, F. E. Colomb, I. F. Mirabel, and V. Boriakoff*. **322**, 549, 144-A1 (1987)

PRATHER, MICHAEL J. Cloud Chemistry on Jupiter. *Barbara E. Carlson, Michael J. Prather, and William B. Rossow*. **322**, 559, 144-A11 (1987)

PREDMORE, C. R. VLBI Structure of 3C 84 at 89 GHz. *D. C. Backer, M. C. H. Wright, R. L. Plambeck, J. E. Carlstrom, C. R. Masson, A. T. Moffet, A. C. S. Readhead, D. Woody, A. E. E. Rogers, J. M. Moran, C. R. Predmore, and R. L. Dickman*. **322**, 74, 138-F11 (1987)

PROTHEROE, R. J. Constraints on Models of Cygnus X-3 from High-Energy Gamma-Ray Absorption at Source. *R. J. Protheroe and Todor Stanev*. **322**, 838, 149-A8 (1987)

RAMSEY, LAWRENCE W. A Flare Event on the Long-Period RS Canum Venaticorum System IM Pegasi. *Derek L. Buzasi, Lawrence W. Ramsey, and David P. Huenemoerder*. **322**, 353, 141-F8 (1987)
RAPPAPORT, S. The Evolutionary Status of 4U 1820 − 30. *S. Rappaport, L. A. Nelson, C. P. Ma, and P. C. Joss*. **322**, 842, 149-A12 (1987)
READHEAD, A. C. S. VLBI Structure of 3C 84 at 89 GHz. *D. C. Backer, M. C. H. Wright, R. L. Plambeck, J. E. Carlstrom, C. R. Masson, A. T. Moffet, A. C. S. Readhead, D. Woody, A. E. E. Rogers, J. M. Moran, C. R. Predmore, and R. L. Dickman*. **322**, 74, 138-F11 (1987)
REYNOLDS, STEPHEN P. A Radio Search for Crab-like Nebulae in M33. *Stephen P. Reynolds and John D. Fix*. **322**, 673, 147-B7 (1987)
RIEGER, E. The Directivity of High-Energy Emission from Solar Flares. II. *Solar Maximum Mission* Observations. *W. Thomas Vestrand, D. J. Forrest, E. L. Chupp, E. Rieger, and G. H. Share*. **322**, 1010, 151-A7 (1987)
ROBINSON, EDWARD L. An Upper Limit to the Space Density of Short-period Noninteracting Binary White Dwarfs. *Edward L. Robinson and Allen W. Shafter*. **322**, 296, 141-B1 (1987)
ROGERS, A. E. E. VLBI Structure of 3C 84 at 89 GHz. *D. C. Backer, M. C. H. Wright, R. L. Plambeck, J. E. Carlstrom, C. R. Masson, A. T. Moffet, A. C. S. Readhead, D. Woody, A. E. E. Rogers, J. M. Moran, C. R. Predmore, and R. L. Dickman*. **322**, 74, 138-F11 (1987)
ROGERS, C. Carbon Grains in the Envelope of IRC +10216. *P. G. Martin and C. Rogers*. **322**, 374, 142-A1 (1987)
ROGERS, F. J. Reexamination of the Metal Contribution to Astrophysical Opacity. *C. A. Iglesias, F. J. Rogers, and B. G. Wilson*. **322**, L45, 145-D2 (1987)
ROGERS, R. D. Determination of Photospheric Helium Abundances for the Hot White Dwarfs LB 1663 and CD − 38°10980 from *EXOSAT* Soft X-Ray Photometry. *F. B. S. Paerels, J. Heise, S. M. Kahn, and R. D. Rogers*. **322**, 315, 141-C6 (1987)
ROSNER, R. Simulations of the Ca XIX Spectral Emission from a Flaring Solar Crornal Loop. I. Thermal Case. *E. Antonucci, M. A. Dodero, G. Peres, S. Serio, and R. Rosner*. **322**, 522, 143-F1 (1987)
ROSSOW, WILLIAM B. Cloud Chemistry on Jupiter. *Barbara E. Carlson, Michael J. Prather, and William B. Rossow*. **322**, 559, 144-A11 (1987)

SAITO, SHUJI. Laboratory and Astronomical Detection of the Cyclic H_3H Radical. *Satoshi Yamamoto, Shuji Saito, Masatoshi Ohishi, Hiroko Suzuki, Shin-Ichi Ishikawa, Norio Kaifu, and Akinori Murakami*. **322**, L55, 145-D12 (1987)
SANDERS, D. B. OH Megamasers in High-Luminosity *IRAS* Galaxies. *I. F. Mirabel and D. B. Sanders*. **322**, 688, 147-C8 (1987)
CO Emission from Centaurus A. *T. G. Phillips, B. N. Ellison, J. B. Keene, R. B. Leighton, R. J. Howard, C. R. Masson, D. B. Sanders, B. Veidt, and K. Young*. **322**, L73, 152-B8 (1987)
SARGENT, WALLACE L. W. Absorption in the Wide QSO Pair Tololo 1037 − 2704 and Tololo 1038 − 2712: Evidence for a Specially Aligned Supercluster at $z = 2$? *Wallace L. W. Sargent and Charles C. Steidel*. **322**, 142, 139-D11 (1987)
SCHADE, D. The M31 Globular Cluster System: Erratum. *D. Crampton, A. P. Cowley, D. Schade, and P. Chayer*. **322**, 1074, 151-F12 (1987) (Orig. paper in **288**, 494, 8-B2)
SCHEUFELE, B. M. The Interstellar Clouds toward 3C 154 and 3C 353. *S. R. Federman, Neal J. Evans II, R. F. Willson, E. Falgarone, F. Combes, and B. M. Scheufele*. **322**, 960, 150-D4 (1987)
SCHIANO, A. V. R. The Effect of a Quasi-stellar Object on Its Host Galaxy: Dynamical and Physical Processes in the Interstellar Medium around a Quasi-stellar Object. *C. A. Chang, A. V. R. Schiano, and A. M. Wolfe*. **322**, 180, 139-G8 (1987)
SCHILD, R. E. X-Ray and Optical Observations of X-Ray–Selected BL Lacertae Objects. *P. Giommi, P. Barr, B. Garilli, I. M. Gioia, T. Maccacaro, D. Maccagni, and R. E. Schild*. **322**, 662, 146-A10 (1987)
SCHMIDT, GARY D. The Discovery of Near-Infrared Polarized Cyclotron Emission in the Intermediate Polar BG Canis Minoris. *Steven C. West, Graham Berriman, and Gary D. Schmidt*. **322**, L35, 145-C7 (1987)
SCHMITT, J. H. M. M. X-Ray Observations of Solar Flares with the *Einstein* Observatory. *J. H. M. M. Schmitt, F. R. Harnden, Jr., and H. Fink*. **322**, 1023, 151-B6 (1987)
SCHNEIDER, P. Particle Acceleration at Shocks: A Monte Carlo Method. *J. G. Kirk and P. Schneider*. **322**, 256, 140-F2 (1987)
SCHNOPPER, H. W. X-Ray Observations of the Supernova Remnant N103B in the Large Magellanic Cloud. *K. P. Singh, N. J. Westergaard, H. W. Schnopper, and D. J. Helfand*. **322**, 80, 138-G3 (1987)
SCHRAMM, D. N. Resonant Neutrino Oscillations and Stellar Collapse. *G. M. Fuller, R. W. Mayle, J. R. Wilson, and D. N. Schramm*. **322**, 795, 148-E3 (1987)
SCHWARTZ, RICHARD D. Near-Infrared H_2 Emission from Herbig-Haro Objects. I. A Survey of Low-Excitation Objects. *Richard D. Schwartz, Martin Cohen, and Peredur M. Williams*. **322**, 403, 142-C2 (1987)
SEKI, MIDORI. Neutrino-Pair Bremsstrahlung in Dense Stars. IV. Phonon Constributions in the Crystalline Lattice Phase: Erratum. *Naoki Itoh, Yasuharu Kohyama, Noriyoshi Matsumoto, and Midori Seki*. **322**, 584, 144-C9 (1987) (Orig. paper in **285**, 304, 113-C2)
SERIO, S. Simulations of the Ca XIX Spectral Emission from a Flaring Solar Crornal Loop. I. Thermal Case. *E. Antonucci, M. A. Dodero, G. Peres, S. Serio, and R. Rosner*. **322**, 522, 143-F1 (1987)
SHAFTER, ALLEN W. An Upper Limit to the Space Density of Short-period Noninteracting Binary White Dwarfs. *Edward L. Robinson and Allen W. Shafter*. **322**, 296, 141-B1 (1987)
SHAPIRO, STUART L. Globular Cluster Evolution in the Galaxy: A Global View. *David F. Chernoff and Stuart L. Shapiro*. **322**, 113, 139-B9 (1987)
SHARE, G. H. The Directivity of High-Energy Emission from Solar Flares. II. *Solar Maximum Mission* Observations. *W. Thomas Vestrand, D. J. Forrest, E. L. Chupp, E. Rieger, and G. H. Share*. **322**, 1010, 151-A7 (1987)
SHIBAZAKI, N. The Effect of Decay of the Amplitude of Oscillation on Random Process Models for QPO X-Ray Stars. *N. Shibazaki, R. F. Elsner, and M. C. Weisskopf*. **322**, 831, 149-A1 (1987)
SHIELDS, G. A. On the Origin of Dwarf Galaxies. *Joseph Silk, Rosemary F. G. Wyse, and G. A. Shields*. **322**, L59, 152-A9 (1987)
SHUTER, W. L. H. Velocity Waves in 21 Centimeter Self-Absorption toward the Taurus Molecular Complex. *W. L. H. Shuter, R. L. Dickman, and C. Klatt*. **322**, L103, 152-D8 (1987)
SIKORA, MAREK. Inverse Compton Scattering of Ambient Radiation by a Cold Relativistic Jet: A Source of Beamed, Polarized Continuum in Blazars? *Mitchell C. Begelman and Marek Sikora*. **322**, 650, 146-G12 (1987)
SILK, JOSEPH. Cosmic String Waves. *Albert Stebbins, Shoba Veeraraghavan, Robert Brandenberger, Joseph Silk, and Neil Turok*. **322**, 1, 138-A7 (1987)
On the Origin of Dwarf Galaxies. *Joseph Silk, Rosemary F. G. Wyse, and G. A. Shields*. **322**, L59, 152-A9 (1987)
SILVA, A. Observation of the OH 1667 MHz Line toward Comet Halley from the Southern Hemisphere. *E. Bajaja, R. Morras, W. G. L. Pöppel, J. E. Cersosimo, M. C. Martin, J. Mazaro, J. C. Olalde, A. Silva, M. E. Arnal, F. E. Colomb, I. F. Mirabel, and V. Boriakoff*. **322**, 549, 144-A1 (1987)
SINGH, K. P. X-Ray Observations of the Supernova Remnant N103B in the Large Magellanic Cloud. *K. P. Singh, N. J. Westergaard, H. W. Schnopper, and D. J. Helfand*. **322**, 80, 138-G3 (1987)
SION, EDWARD M. A Catalog of Spectroscopically Indentified White Dwarfs (Abstract of Paper in 1987 December Suppl.). *George P. McCook and Edward M. Sion*. **322**, 1076, 151-G2 (1987)
SKUMANICH, A. Stokes Profile Analysis and Vector Magnetic Fields. I. Inversion of Photospheric Lines. *A. Skumanich and B. W. Lites*. **322**, 473, 143-B8 (1987)
The Polarization Properties of Model Sunspots: The Broad-Band Polarization Signature of the Schlüter-Temesvary Representation. *A. Skumanich and B. W. Lites*. **322**, 483, 143-C4 (1987)
SMITH, GRAEME H. Chemical Enrichment of Halo Protoclusters with Differing Stellar Mass Functions: Erratum. *Graeme H. Smith and Robert D. McClure*. **322**, 1074, 151-F12 (1987) (Orig. paper in **316**, 206, 52-C3)
SMITH, HARDING E. Emission-Line Variability and the Broad-Line Region of Quasi-stellar Objects. I. Time Scales and Photon Densities. *Wei Zheng, E. Margaret Burbidge, Harding E. Smith, Ross D. Cohen, and Steven E. Bradley*. **322**, 164, 139-F5 (1987)
SMITH, KERMIT L. Simultaneous *SMM* Flat Crystal Spectrometer and Very Large Array Observations of Solar Active Regions. *Kenneth R. Lang, Robert F. Willson, Kermit L. Smith, and Keith T. Strong*. **322**, 1035, 151-C4 (1987)
Solar Active Region Physical Parameters Inferred from a Thermal Cyclotron Line and Soft X-Ray Spectral Lines. *Kenneth R. Lang, Robert F. Willson, Kermit L. Smith, and Keith T. Strong*. **322**, 1044, 151-D3 (1987)
SMITH, PETER L. Absolute Oscillator Strengths for 108 Lines of Si I between 163 and 410 Nanometers. *Peter L. Smith, M. C. E. Huber, G. P. Tozzi, H. E. Griesinger, B. L. Cardon, and G. G. Lombardi*. **322**, 573, 144-B12 (1987)
SODROSKI, T. J. Large-Scale Galactic Dust Morphology and Physical Conditions from *IRAS* Observations. *T. J. Sodroski, E. Dwek, M. G. Hauser, and F. J. Kerr*. **322**, 101, 139-A10 (1987)
SONNEBORN, GEORGE. Recurrent Episodic Mass Loss in a B2e Star: 66

Ophiuchi, 1982–1985 (Abstract of Paper in 1987 December Suppl.). *C. A. Grady, George Sonneborn, Chi-Chao Wu, and H. F. Henrichs*. **322**, 1077, 151-G3 (1987)

SPANGLER, STEVEN R. VLA and Low-Frequency VLBI Observations of the Radio Source 0503 + 467: Austere Constraints on Interstellar Scattering in Two Media. *Steven R. Spangler, Alan L. Fey, and James M. Cordes*. **322**, 909, 149-G3 (1987)

SPRANGLE, PHILLIP. Evolution of the Axial Electron Cyclotron Maser Instability, with Applications to Solar Microwave Spikes. *Loukas Vlahos and Phillip Sprangle*. **322**, 463, 143-A10 (1987)

STACEY, G. J. Submillimeter and Far-Infrared Spectroscopy of M17 and S106: UV-Heated, Quiescent Molecular Gas? *A. I. Harris, J. Stutzki, R. Genzel, J. B. Lugten, G. J. Stacey, and D. T. Jaffe*. **322**, L49, 145-D6 (1987)

STAMM, R. Partial Redistribution in High-Density, Highly Ionized Plasmas. *B. Talin, R. Stamm, V. P. Kaftandjian, and Lewis Klein*. **322**, 804, 148-E12 (1987)

STANEV, TODOR. Constraints on Models of Cygnus X-3 from High-Energy Gamma-Ray Absorption at Source. *R. J. Protheroe and Todor Stanev*. **322**, 838, 149-A8 (1987)

STARK, ANTONY A. Molecules in Galaxies. V. CO Observations of Flocculent and Grand-Design Spirals. *Antony A. Stark, Bruce G. Elmegreen, and Don Chance*. **322**, 64, 138-F1 (1987)

STAUDE, H. J. Temporal Changes of the IRS 5 Jet in L1551. *Th. Neckel and H. J. Staude*. **322**, L27, 145-B13 (1987)

STEBBINS, ALBERT. Cosmic String Waves. *Albert Stebbins, Shoba Veeraraghavan, Robert Brandenberger, Joseph Silk, and Neil Turok*. **322**, 1, 138-A7 (1987)

STEIDEL, CHARLES C. Absorption in the Wide QSO Pair Tololo 1037 − 2704 and Tololo 1038 − 2712: Evidence for a Specially Aligned Supercluster at $z = 2$? *Wallace L. W. Sargent and Charles C. Steidel*. **322**, 142, 139-D11 (1987)

STEINOLFSON, R. S. Energy Buildup in Coronal Magnetic Flux Tubes. *R. S. Steinolfson and T. Tajima*. **322**, 503, 143-D10 (1987)

STELLINGWERF, R. F. Fourier Coefficients of the RR Lyrae Variables in NGC 6171. *R. F. Stellingwerf and R. J. Dickens*. **322**, 133, 139-D2 (1987)

ST-LOUIS, NICOLE. Polarization Variability among Wolf-Rayet Stars. I. Linear Polarization of a Complete Sample of Southern Galactic WC Stars. *Nicole St-Louis, Laurent Drissen, Anthony F. J. Moffat, Pierre Bastien, and Santiago Tapia*. **322**, 870, 149-C13 (1987)

Polarization Variability among Wolf-Rayet Stars. II. Linear Polarization as a Complete Sample of Southern Galactic WN Stars. *Laurent Drissen, Nicole St-Louis, Anthony F. J. Moffat, and Pierre Bastien*. **322**, 888, 149-E5 (1987)

STRAUSS, MICHAEL A. Cosmological Parameters from the *IRAS* Galaxy Sample. *Jens Verner Villumsen and Michael A. Strauss*. **322**, 37, 138-D1 (1987)

STRITTMATTER, P. A. Synchrotron Emission from Shock Waves in Active Galactic Nuclei. *P. L. Biermann and P. A. Strittmatter*. **322**, 643, 146-G5 (1987)

STRONG, KEITH T. Simultaneous *SMM* Flat Crystal Spectrometer and Very Large Array Observations of Solar Active Regions. *Kenneth R. Lang, Robert F. Willson, Kermit L. Smith, and Keith T. Strong*. **322**, 1035, 151-C4 (1987)

Solar Active Region Physical Parameters Inferred from a Thermal Cyclotron Line and Soft X-Ray Spectral Lines. *Kenneth R. Lang, Robert F. Willson, Kermit L. Smith, and Keith T. Strong*. **322**, 1044, 151-D3 (1987)

STUTZKI, J. Submillimeter and Far-Infrared Spectroscopy of M17 and S106: UV-Heated, Quiescent Molecular Gas? *A. I. Harris, J. Stutzki, R. Genzel, J. B. Lugten, G. J. Stacey, and D. T. Jaffe*. **322**, L49, 145-D6 (1987)

SULENTIC, JACK W. Properties of Dense Galaxy Groups and the Implications of Their Existence. *Jack W. Sulentic*. **322**, 605, 146-D7 (1987)

SUNYAEV, R. A. *SMM* Hard X-Ray Observations of the Soft Gamma-Ray Repeater 1806 − 20. *C. Kouveliotou, J. P. Norris, T. L. Cline, B. R. Dennis, U. D. Desai, L. E. Orwig, E. E. Fenimore, R. W. Klebesadel, J. G. Laros, J.-L. Atteia, M. Boer, K. Hurley, M. Neil, G. Vedrenne, A. V. Kuznetsov, R. A. Sunyaev, and O. V. Terekhof*. **322**, L21, 145-B8 (1987)

SUZUKI, HIROKO. Laboratory and Astronomical Detection of the Cyclic H_3H Radical. *Satoshi Yamamoto, Shuji Saito, Masatoshi Ohishi, Hiroko Suzuki, Shin-Ichi Ishikawa, Norio Kaifu, and Akinori Murakami*. **322**, L55, 145-D12 (1987)

TAAM, RONALD E. The Spectra of Accretion Disks and Their Application to Low-Mass X-Ray Binaries. *Ronald E. Taam and P. Mészáros*. **322**, 329, 141-D6 (1987)

TACCONI, LINDA J. The CO Contents of Dwarf Irregular Galaxies. *Linda J. Tacconi and Judith S. Young*. **322**, 681, 147-C1 (1987)

TAJIMA, T. Energy Buildup in Coronal Magnetic Flux Tubes. *R. S. Steinolfson and T. Tajima*. **322**, 503, 143-D10 (1987)

TALIN, B. Partial Redistribution in High-Density, Highly Ionized Plasmas. *B. Talin, R. Stamm, V. P. Kaftandjian, and Lewis Klein*. **322**, 804, 148-E12 (1987)

TAPIA, SANTIAGO. Polarization Variability among Wolf-Rayet Stars. I. Linear Polarization of a Complete Sample of Southern Galactic WC Stars. *Nicole St-Louis, Laurent Drissen, Anthony F. J. Moffat, Pierre Bastien, and Santiago Tapia*. **322**, 870, 149-C13 (1987)

TARAFDAR, S. P. Effect of Balmer Continuum Absorption on Line Emission from Be Stars. *Krishna M. V. Apparao and S. P. Tarafdar*. **322**, 976, 150-E7 (1987)

OH and CH Continuous Opacity in Solar and Stellar Atmospheres. *Robert L. Kurucz, Ewine F. van Dishoeck, and S. P. Tarafdar*. **322**, 992, 150-F13 (1987)

TASSOUL, JEAN-LOUIS. On Synchronization in Early-Type Binaries. *Jean-Louis Tassoul*. **322**, 856, 149-B12 (1987)

TAYLOR, BENJAMIN J. The "Alternative X" Question: What Causes the Strong Molecular Bands and Damping Lines in the Very Strong Lined (Super–Metal-rich) Stars? *Benjamin J. Taylor and Scott B. Johnson*. **322**, 930, 150-B2 (1987)

TEREKHOF, O. V. *SMM* Hard X-Ray Observations of the Soft Gamma-Ray Repeater 1806 − 20. *C. Kouveliotou, J. P. Norris, T. L. Cline, B. R. Dennis, U. D. Desai, L. E. Orwig, E. E. Fenimore, R. W. Klebesadel, J. G. Laros, J.-L. Atteia, M. Boer, K. Hurley, M. Neil, G. Vedrenne, A. V. Kuznetsov, R. A. Sunyaev, and O. V. Terekhof*. **322**, L21, 145-B8 (1987)

THADDEUS, P. A Composite CO Survey of the Entire Milky Way. *T. M. Dame, H. Ungerechts, R. S. Cohen, E. J. de Geus, I. A. Grenier, J. May, D. C. Murphy, L.-A. Nyman, and P. Thaddeus*. **322**, 706, 147-D13 (1987)

THRONSON, HARLEY A., JR. Properties of Evolved Mass-losing Stars in the Milky Way and Variations in the Interstellar Dust Composition. *Harley A. Thronson, Jr., William B. Latter, John H. Black, John Bally, and Perry Hacking*. **322**, 770, 148-C5 (1987)

THUAN, TRINH X. Near-Infrared Observations of Submillijansky Radio Sources: Evidence for a Population of Starburst Galaxies at Intermediate Redshifts. *Trinh X. Thuan and J. J. Condon*. **322**, L9, 145-A11 (1987)

TOHLINE, JOEL E. The Crucial Role of Cooling in the Making of Molecular Clouds and Stars. *Joel E. Tohline, Peter H. Bodenheimer, and Dimitris M. Christodoulou*. **322**, 787, 148-D9 (1987)

TONER, C. G. An Analysis of the Photospheric Line Profiles in F, G, and K Supergiants. *David F. Gray and C. G. Toner*. **322**, 360, 141-G1 (1987)

TONRY, JOHN L. A Central Black Hole in M32. *John L. Tonry*. **322**, 932, 146-F7 (1987)

TORRES, ANA V. Ultraviolet Interstellar Extinction toward NGC 6530 and the Intrinsic Energy Distribution of 9 Sagittarii and HD 165052. *Ana V. Torres*. **322**, 949, 150-C7 (1987)

TOZZI, G. P. Absolute Oscillator Strengths for 108 Lines of Si I between 163 and 410 Nanometers. *Peter L. Smith, M. C. E. Huber, G. P. Tozzi, H. E. Griesinger, B. L. Cardon, and G. G. Lombardi*. **322**, 573, 144-B12 (1987)

TURNER, JEAN L. Hot Gas in the Nucleus of IC 342: Detection of $J = 3–2$ CO Emission. *Paul T. P. Ho, Jean L. Turner, and Robert N. Martin*. **322**, L67, 152-B3 (1987)

TURNSHEK, DAVID A. An Absorption-Line Survey of 32 QSOs at Red Wavelengths: Properties of the Mg II Absorbers. *Kenneth M. Lanzetta, David A. Turnshek, and Arthur M. Wolfe*. **322**, 739, 148-A2 (1987)

TUROK, NEIL. Cosmic String Waves. *Albert Stebbins, Shoba Veeraraghavan, Robert Brandenberger, Joseph Silk, and Neil Turok*. **322**, 1, 138-A7 (1987)

UNGERECHTS, H. A Composite CO Survey of the Entire Milky Way. *T. M. Dame, H. Ungerechts, R. S. Cohen, E. J. de Geus, I. A. Grenier, J. May, D. C. Murphy, L.-A. Nyman, and P. Thaddeus*. **322**, 706, 147-D13 (1987)

VAN DISHOECK, EWINE F. Fluorescent Excitation of Interstellar H_2. *John H. Black and Ewine F. van Dishoeck*. **322**, 412, 142-C11 (1987)

OH and CH Continuous Opacity in Solar and Stellar Atmospheres. *Robert L. Kurucz, Ewine F. van Dishoeck, and S. P. Tarafdar*. **322**, 992, 150-F13 (1987)

VEDRENNE, G. *SMM* Hard X-Ray Observations of the Soft Gamma-Ray Repeater 1806 − 20. *C. Kouveliotou, J. P. Norris, T. L. Cline, B. R. Dennis, U. D. Desai, L. E. Orwig, E. E. Fenimore, R. W. Klebesadel, J. G. Laros, J.-L. Atteia, M. Boer, K. Hurley, M. Neil, G. Vedrenne, A.*

V. Kuznetsov, R. A. Sunyaev, and O. V. Terekhof. **322**, L21, 145-B8 (1987)

VEERARAGHAVAN, SHOBA. Cosmic String Waves. *Albert Stebbins, Shoba Veeraraghavan, Robert Brandenberger, Joseph Silk, and Neil Turok*. **322**, 1, 138-A7 (1987)

VEIDT, B. CO Emission from Centaurus A. *T. G. Phillips, B. N. Ellison, J. B. Keene, R. B. Leighton, R. J. Howard, C. R. Masson, D. B. Sanders, B. Veidt, and K. Young*. **322**, L73, 152-B8 (1987)

VERTER, FRANCES. Systematic Properties of CO Emission from Galaxies. I. Luminosity Function (Abstract of Paper in 1987 December Suppl.). *Frances Verter*. **322**, 1075, 151-G1 (1987)

VESTRAND, W. THOMAS. The Directivity of High-Energy Emission from Solar Flares. II. *Solar Maximum Mission* Observations. *W. Thomas Vestrand, D. J. Forrest, E. L. Chupp, E. Rieger, and G. H. Share*. **322**, 1010, 151-A7 (1987)

VILLUMSEN, JENS VERNER. Cosmological Parameters from the *IRAS* Galaxy Sample. *Jens Verner Villumsen and Michael A. Strauss*. **322**, 37, 138-D1 (1987)

VISHNIAC, ETHAN T. Reionization and Small-Scale Fluctuations in the Microwave Background. *Ethan T. Vishniac*. **322**, 597, 146-C13 (1987)

VLAHOS, LOUKAS. Evolution of the Axial Electron Cyclotron Maser Instability, with Applications to Solar Microwave Spikes. *Loukas Vlahos and Phillip Sprangle*. **322**, 463, 143-A10 (1987)

WAGNER, R. MARK. Ground-based Constraints on the H_2O^+/CO^+ Abundance Ratio and Dust Impact Rate in Comet P/Giacobini-Zinner: Comparison with the *ICE* Spacecraft Results. *R. Mark Wagner, Barry L. Lutz, and S. Wyckoff*. **322**, 544, 143-G9 (1987)

WAGONER, ROBERT V. Spectral Flux from Low-Density Photospheres: Low-Temperature Results. *Stephen Hershkowitz and Robert V. Wagoner*. **322**, 967, 150-D11 (1987)

WARNER, BRIAN. The Period Distribution and Evolution of Short-Period Cataclysmic Variables. *Brian Warner and Mario Livio*. **322**, L95, 152-C14 (1987)

WEISSKOPF, M. C. The Effect of Decay of the Amplitude of Oscillation on Random Process Models for QPO X-Ray Stars. *N. Shibazaki, R. F. Elsner, and M. C. Weisskopf*. **322**, 831, 149-A1 (1987)

WEST, STEVEN C. The Discovery of Near-Infrared Polarized Cyclotron Emission in the Intermediate Polar BG Canis Minoris. *Steven C. West, Graham Berriman, and Gary D. Schmidt*. **322**, L35, 145-C7 (1987)

WESTERGAARD, N. J. X-Ray Observations of the Supernova Remnant N103B in the Large Magellanic Cloud. *K. P. Singh, N. J. Westergaard, H. W. Schnopper, and D. J. Helfand*. **322**, 80, 138-G3 (1987)

WHITE, SIMON D. M. The Appearance of Primeval Galaxies. *E. Baron and Simon D. M. White*. **322**, 585, 146-C1 (1987)

WIBBERENZ, G. A Multispacecraft Study of the Injection and Transport of Solar Energetic Particles. *J. Beeck, G. M. Mason, D. C. Hamilton, G. Wibberenz, H. Kunow, D. Hovestadt, and B. Klecker*. **322**, 1052, 151-D14 (1987)

WICHOSKI, U. F. A Search for QSOs to Fit a Cosmological Model with Flat, Closed Spatial Sections. *H. V. Fagundes and U. F. Wichoski*. **322**, L5, 145-A8 (1987)

WILLIAMS, PEREDUR M. Near-Infrared H_2 Emission from Herbig-Haro Objects. I. A Survey of Low-Excitation Objects. *Richard D. Schwartz, Martin Cohen, and Peredur M. Williams*. **322**, 403, 142-C2 (1987)

WILLSON, R. F. The Interstellar Clouds toward 3C 154 and 3C 353. *S. R. Federman, Neal J. Evans II, R. F. Willson, E. Falgarone, F. Combes, and B. M. Scheufele*. **322**, 960, 150-D4 (1987)

WILLSON, ROBERT F. Simultaneous *SMM* Flat Crystal Spectrometer and Very Large Array Observations of Solar Active Regions. *Kenneth R. Lang, Robert F. Willson, Kermit L. Smith, and Keith T. Strong*. **322**, 1035, 151-C4 (1987)

Solar Active Region Physical Parameters Inferred from a Thermal Cyclotron Line and Soft X-Ray Spectral Lines. *Kenneth R. Lang, Robert F. Willson, Kermit L. Smith, and Keith T. Strong*. **322**, 1044, 151-D3 (1987)

WILSON, B. G. Reexamination of the Metal Contribution to Astrophysical Opacity. *C. A. Iglesias, F. J. Rogers, and B. G. Wilson*. **322**, L45, 145-D2 (1987)

WILSON, J. R. Resonant Neutrino Oscillations and Stellar Collapse. *G. M. Fuller, R. W. Mayle, J. R. Wilson, and D. N. Schramm*. **322**, 795, 148-E3 (1987)

WILSON, ROBERT W. Radio Observations of Carbon Monoxide toward Zeta Ophiuchi: Velocity Structure, Isotopic Abundances, and Physical Properties. *William D. Langer, Alfred E. Glassgold, and Robert W. Wilson*. **322**, 450, 142-G9 (1987)

WOLFE, A. M. The Effect of a Quasi-stellar Object on Its Host Galaxy: Dynamical and Physical Processes in the Interstellar Medium around a Quasi-stellar Object. *C. A. Chang, A. V. R. Schiano, and A. M. Wolfe*. **322**, 180, 139-G8 (1987)

WOLFE, ARTHUR M. An Absorption-Line Survey of 32 QSOs at Red Wavelengths: Properties of the Mg II Absorbers. *Kenneth M. Lanzetta, David A. Turnshek, and Arthur M. Wolfe*. **322**, 739, 148-A2 (1987)

WOOD, P. R. The Ionization Effects of Shock Breakout in SN 1987A. *M. A. Dopita, S. J. Meatheringham, P. Nulsen, and P. R. Wood*. **322**, L85, 152-C5 (1987)

WOODY, D. VLBI Structure of 3C 84 at 89 GHz. *D. C. Backer, M. C. H. Wright, R. L. Plambeck, J. E. Carlstrom, C. R. Masson, A. T. Moffet, A. C. S. Readhead, D. Woody, A. E. E. Rogers, J. M. Moran, C. R. Predmore, and R. L. Dickman*. **322**, 74, 138-F11 (1987)

WRIGHT, M. C. H. VLBI Structure of 3C 84 at 89 GHz. *D. C. Backer, M. C. H. Wright, R. L. Plambeck, J. E. Carlstrom, C. R. Masson, A. T. Moffet, A. C. S. Readhead, D. Woody, A. E. E. Rogers, J. M. Moran, C. R. Predmore, and R. L. Dickman*. **322**, 74, 138-F11 (1987)

WU, CHI-CHAO. Recurrent Episodic Mass Loss in a B2e Star: 66 Ophiuchi, 1982–1985 (Abstract of Paper in 1987 December Suppl.). *C. A. Grady, George Sonneborn, Chi-Chao Wu, and H. F. Henrichs*. **322**, 1077, 151-G3 (1987)

WYCKOFF, S. Ground-based Constraints on the H_2O^+/CO^+ Abundance Ratio and Dust Impact Rate in Comet P/Giacobini-Zinner: Comparison with the *ICE* Spacecraft Results. *R. Mark Wagner, Barry L. Lutz, and S. Wyckoff*. **322**, 544, 143-G9 (1987)

WYSE, ROSEMARY F. G. On the Origin of Dwarf Galaxies. *Joseph Silk, Rosemary F. G. Wyse, and G. A. Shields*. **322**, L59, 152-A9 (1987)

YAMAMOTO, SATOSHI. Laboratory and Astronomical Detection of the Cyclic H_3H Radical. *Satoshi Yamamoto, Shuji Saito, Masatoshi Ohishi, Hiroko Suzuki, Shin-Ichi Ishikawa, Norio Kaifu, and Akinori Murakami*. **322**, L55, 145-D12 (1987)

YIN, Q. F. A 1.49 GHz Supplementary Atlas of Spiral Galaxies with *H*-Magnitudes (Abstract of Paper in 1987 December Suppl.). *J. J. Condon, Q. F. Yin, and David Burstein*. **322**, 1075, 151-G1 (1987)

YOU, J. H. New Considerations on the Broad-Line Regions of Quasars. *J. H. You and F. H. Cheng*. **322**, 174, 139-G2 (1987)

YOUNG, JUDITH S. The CO Contents of Dwarf Irregular Galaxies. *Linda J. Tacconi and Judith S. Young*. **322**, 681, 147-C1 (1987)

YOUNG, K. CO Emission from Centaurus A. *T. G. Phillips, B. N. Ellison, J. B. Keene, R. B. Leighton, R. J. Howard, C. R. Masson, D. B. Sanders, B. Veidt, and K. Young*. **322**, L73, 152-B8 (1987)

YUSEF-ZADEH, FARHAD. The Linear Filaments of the Radio Arc near the Galactic Center. *Farhad Yusef-Zadeh and Mark Morris*. **322**, 721, 147-F7 (1987)

ZHENG, WEI. Emission-Line Variability and the Broad-Line Region of Quasi-stellar Objects. I. Time Scales and Photon Densities. *Wei Zheng, E. Margaret Burbidge, Harding E. Smith, Ross D. Cohen, and Steven E. Bradley*. **322**, 164, 139-F5 (1987)

ZWEIBEL, ELLEN G. The Scattering of Alfvén Waves by Density Fluctuations. *He-Sheng Li and Ellen G. Zweibel*. **322**, 248, 140-E8 (1987)